

ACADEMIC MOTIVATION AND SELF-EFFICACY IN
ORAL AND MAXILLOFACIAL SURGERY COURSES
AMONG UNDERGRADUATE DENTAL STUDENTS AT
INTERNATIONAL ISLAMIC UNIVERSITY
MALAYSIA: A MIXED-METHODS STUDY

BY

NUR RABIATUL ADAWIYAH BINTI
KAMARUZAMAN

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

2026

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A dissertation submitted in fulfilment of the requirement for
the degree of Master of Dental Sciences

Kulliyyah of Dentistry
International Islamic University Malaysia

JUNE 2026

ABSTRACT

Academic motivation and self-efficacy are essential components of successful learning and clinical performance in dental education. However, limited research has explored how these elements interact specifically within the context of oral and maxillofacial surgery (OMFS), a core yet challenging discipline in dentistry. This study aims to address this gap by examining the levels and influencing factors of academic motivation and self-efficacy among clinical dental students enrolled in the OMFS course at the Kulliyah of Dentistry, International Islamic University Malaysia (IIUM). The findings aim to inform strategies for strengthening dental education and clinical preparedness. A mixed-methods approach was adopted using a sequential explanatory design. Quantitative data were collected through validated questionnaires measuring academic motivation and self-efficacy, administered to clinical dental students. The qualitative phase involved online focus group discussions (FGDs) with fourteen participants, guided by a semi-structured interview protocol. Thematic analysis was employed to explore deeper insights into students' experiences and perceptions. Quantitative analysis revealed a high level of academic motivation ($M = 5.31$, $SD = 0.77$) and self-efficacy in OMFS ($M = 3.51$, $SD = 0.64$). Comparative analyses indicated variations by gender and year of study. The qualitative findings uncovered several key motivational drivers, including personal aspirations, family encouragement, and a strong desire to serve the community. Self-efficacy was notably influenced by supportive mentorship, clinical exposure, and peer collaboration. Both motivation and self-efficacy were found to be interconnected, reinforcing each other throughout the students' clinical journey. In conclusion, the study underscores the importance of fostering academic motivation and self-efficacy to enhance learning outcomes and clinical readiness in OMFS. It recommends the implementation of structured mentorship programmes, the promotion of peer and family support systems, and strategies to cultivate a growth mindset among dental students. These efforts are crucial for nurturing resilient, confident, and motivated future dentists.

البحث ملخص

يعد التحفيز الأكاديمي والثقة بالنفس من العناصر الأساسية لنجاح التعلم والأداء السريري في تعليم طب الأسنان. يعد التحفيز الأكاديمي ومع ذلك، هناك نقص في الأبحاث التي تناولت تفاعل هذين العاملين داخل سياق جراحة الفم والوجه والفكين، وهي مادة أساسية ومليئة بالتحديات في طب الأسنان. يهدف هذا البحث إلى سد هذه الفجوة من خلال دراسة مستويات الدافعية الأكاديمية والثقة بالنفس والعوامل المؤثرة عليها بين طلاب طب الأسنان السريريين المسجلين في مقرر جراحة الفم والوجه والفكين في كلية طب الأسنان، الجامعة الإسلامية العالمية ماليزيا. وتسهم نتائج هذا البحث في تحسين تعليم طب الأسنان وضمان إعداد أطباء أسنان مؤهلين وذوي دافعية عالية لتقديم أفضل رعاية للمرضى. تم اعتماد منهج البحث المختلط باستخدام تصميم تفسيري متسلسل. وقد تم جمع البيانات الكمية باستخدام استبيانات معتمدة تقيس الدافعية الأكاديمية والثقة بالنفس، والتي تم توزيعها على طلاب المرحلة السريرية. أما البيانات النوعية فقد جُمعت من خلال مناقشات جماعية افتراضية مع أربعة عشر مشاركاً، باستخدام دليل مقابلة شبه منظم. وتم تحليل البيانات باستخدام التحليل الموضوعي لاستكشاف أعمق لتجارب وآراء الطلاب. أظهرت النتائج الكمية وجود مستوى عالٍ من الدافعية الأكاديمية (المتوسط = 5.31، الانحراف المعياري = 0.77) والثقة في مقرر جراحة الفم والوجه والفكين (المتوسط = 3.51، الانحراف المعياري = 0.64). كما أظهرت التحليلات المقارنة وجود اختلافات حسب الجنس والسنة الدراسية. وكشفت النتائج النوعية عن عدة دوافع رئيسية مثل الطموحات الشخصية، وتشجيع الأسرة، والرغبة في خدمة المجتمع. كما تأثرت الثقة بشكل ملحوظ بالدعم الإرشادي، والتعرض السريري، والتعاون بين الأقران. وقد تبين أن الدافعية والثقة مترابطتان وتعززان بعضهما البعض طوال مسيرة الطلاب السريرية. وفي الختام، يؤكد هذا البحث على أهمية تعزيز الدافعية الأكاديمية والثقة بالنفس لتحسين نتائج التعلم والاستعداد السريري في مقرر جراحة الفم والوجه والفكين. ويوصي بتطبيق برامج إرشاد منظمة، وتعزيز أنظمة الدعم الأسري والزملاء، واعتماد استراتيجيات تُعزز عقلية النمو لدى طلاب طب الأسنان، بهدف إعداد أطباء أسنان واثقين، مرنين، وذوي دافعية ذاتية

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Master of Dental Sciences.

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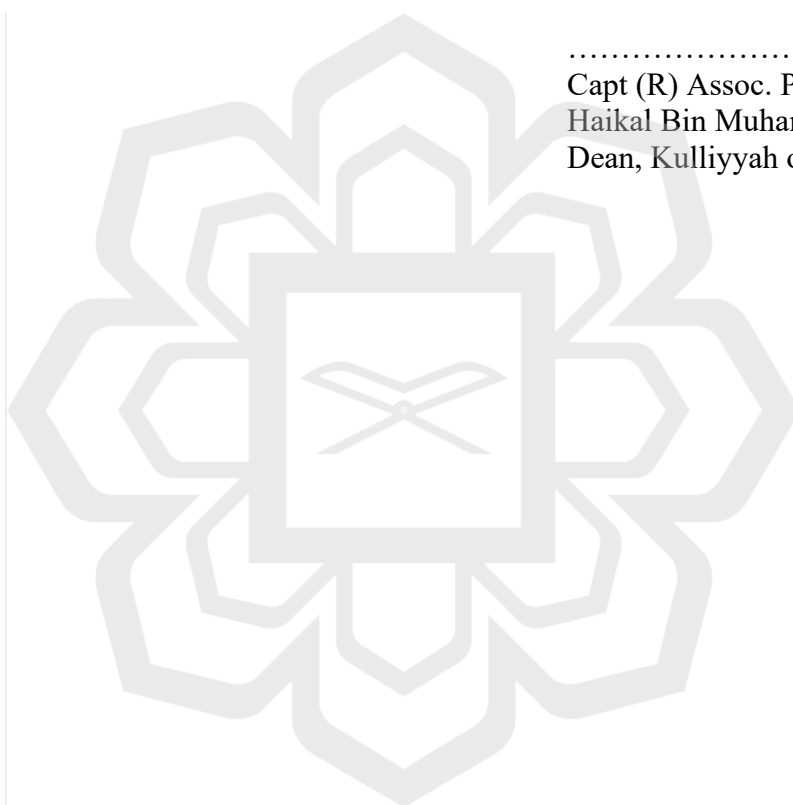
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DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Nur Rabiatal Adawiyah Binti Kamaruzaman

Signature.....

Date: 3rd June 2026



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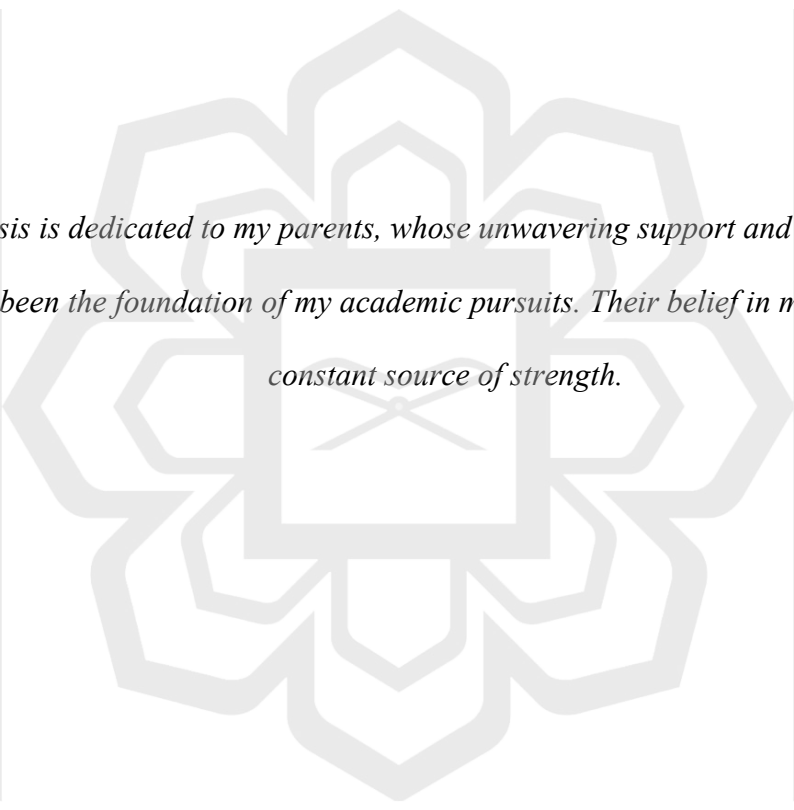
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This thesis is dedicated to my parents, whose unwavering support and encouragement have been the foundation of my academic pursuits. Their belief in me has been a constant source of strength.

ACKNOWLEDGEMENTS

All glory is due to Allah, the Almighty, whose Grace and Mercies have been with me throughout the duration of my programme. Although it has been tasking, His Mercies and Blessings on me ease the herculean task of completing this thesis.

My supervisor, Assoc. Prof. Dr. Khairul Bariah Binti Chi Adam, Capt. (R) Assoc. Prof. Dr. Mohd Haikal Bin Muhamad Halil, Dr. Galvin Sim Siang Lin and Assoc. Prof. Dr. Foong Chan Choong, for their invaluable guidance, expertise, and unwavering support throughout every stage of this research project.

The faculty members of the Oral Maxillofacial Surgery and Oral Diagnosis department and Master of Dental Sciences programme for their insightful feedback, encouragement, and constructive criticism, which significantly enriched the quality of this thesis.

My colleagues and friends who provided moral support, encouragement, and valuable insights during discussions and brainstorming sessions.

The participants of this study, whose willingness to share their experiences and perspectives made this research possible.

My family for their unconditional love, encouragement, and understanding during moments of stress and uncertainty.

Their contributions have been invaluable, and I am deeply grateful for their assistance in making this thesis a reality.

Once again, we glorify Allah for His endless mercy on us, one of which is enabling us to successfully round off the efforts of writing this thesis. Alhamdulillah.

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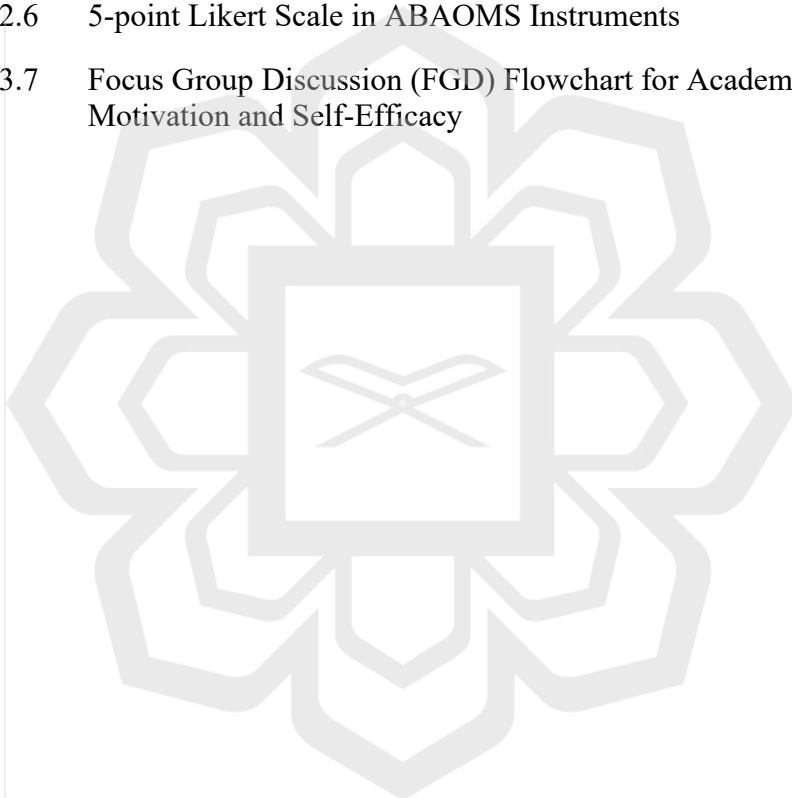
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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

In the realm of dental education, the acquisition of surgical skills, particularly in the field of Oral and Maxillofacial Surgery (OMFS), is a cornerstone of proficiency and expertise. However, the journey towards mastering these intricate surgical techniques is not merely a matter of technical proficiency; rather, it is deeply intertwined with the psychological factors that underpin a student's motivation and self-efficacy (Wang et al., 2020). Understanding the dynamics of academic motivation and self-efficacy in the context of OMFS among dental students is essential for refining educational strategies and nurturing a generation of competent and resilient dental professionals (Steinmayr et al., 2019).

OMFS encompasses a broad spectrum of procedures, from tooth extractions to complex reconstructive surgeries involving the maxillofacial region. These procedures demand technical prowess and a profound understanding of patient care, anatomical structures, and surgical principles (Jarosz et al., 2013). According to the American Association of Oral and Maxillofacial Surgeons, OMFS is a specialized branch of dentistry that involves the identification, surgical procedures, and treatment of conditions, injuries, and irregularities affecting the functional and aesthetic aspects of the oral and maxillofacial area, encompassing both the bony and soft tissues.

Central to mastering OMFS techniques is the psychological landscape of the dental student, characterized by two pivotal constructs: academic motivation and self-efficacy. Academic motivation refers to the internal and external factors that energize, direct, and sustain a student's engagement and persistence in learning activities (Cook & Jr., 2016). It encompasses a spectrum of motivational forces, including intrinsic motivation driven by personal interest and satisfaction and extrinsic motivation stemming from external rewards or pressures as proposed by Self-Determination Theory (SDT) (Ryan & Deci, 2019; Howard et al., 2021).

Conversely, self-efficacy denotes a student's belief in their capabilities to successfully execute surgical procedures and overcome challenges encountered during the learning process (Kamal & Abdulwahab, 2021). Rooted in Bandura's theory of self-efficacy, self-efficacy in the context of oral surgery reflects a student's perceived competence in their ability to perform surgical tasks and manage associated stressors effectively (Guay et al., 2015).

This thesis explores the intricate interplay between academic motivation and self-efficacy among dental students embarking on their journey in OMFS. By employing a mixed-methods approach, combining quantitative assessments with qualitative insights, this study provides a comprehensive understanding of the multifaceted factors influencing students' motivation levels and self-efficacy in tackling the challenges posed by OMFS procedures.

The significance of this research lies in its potential to inform educational practices that foster a supportive learning environment that nurtures dental students' motivation and self-efficacy. Furthermore, by shedding light on students' nuanced experiences and perceptions, this study aims to contribute to the broader discourse on surgical education within the dental curriculum, thereby enhancing the quality of training and, ultimately, the delivery of oral healthcare services.

By exploring motivational constructs, such as intrinsic and extrinsic motivation, and examining the role of self-efficacy and perceived competence, this thesis explores the complicated psychological mechanisms that drive students' engagement and persistence in mastering the art of OMFS. Moreover, by capturing students' lived experiences and perspectives through qualitative inquiry, this study aims to unearth the underlying factors shaping their self-efficacy levels and coping strategies when confronted with the challenges inherent in OMFS practice.

The mental health and well-being of dental students are gaining increased attention due to the high levels of stress and burnout they face. A few studies found that dental students reported experiencing significant stress, mainly due to the demanding nature of their studies and clinical work. Recognizing this, institutions are implementing

wellness programs to help students manage stress and improve their overall well-being, essential for their long-term professional and personal success (Yaacob et al., 2018; Abu Bakar et al., 2021).

In conclusion, this thesis embarks on a journey to unravel the complex interplay between academic motivation and self-efficacy among dental students navigating the realm of OMFS. By employing a mixed-methods approach, this study aspires to offer valuable insights that can inform educational policies and practices to develop competent and resilient dental professionals equipped to meet the evolving demands of contemporary oral healthcare practice.

Within dental education, the acquisition of surgical skills, particularly in the specialized field of OMFS, is a pivotal aspect of professional competence and proficiency. However, a gap exists in understanding the psychological factors influencing dental students' engagement, motivation, and self-efficacy despite the recognised importance of mastering OMFS techniques. The amalgamation of academic motivation and self-efficacy plays a fundamental role in shaping students' perseverance, efficacy, and overall learning experience in OMFS.

Based on a previous study, 21.3% of the students found the OMFS course to be the most challenging field in dentistry, while only 2.4% considered it the easiest branch (Sari & Derdiyok, 2021). Several factors contribute to this issue, including the complex surgical techniques involved, the need for a deep understanding of anatomy and pathology, and the pressure associated with mastering both theoretical knowledge and practical skills (Wang et al., 2020). Furthermore, the limited exposure to OMFS courses during early years of dental education might lead to a lack of familiarity and comfort with the subject matter, exacerbating feelings of insecurity among students (Gaballah et al., 2023; Ali et al., 2016; Ali et al., 2017; Ali et al., 2018; Mat Yudin et al., 2020).

The consequences of low motivation and self-efficacy are multifaceted, impacting academic performance and essential clinical skills (Karimi & Saadatmand, 2014). Students who lack self-efficacy in their abilities may hesitate to actively participate in clinical settings actively, hindering their overall professional growth. This issue is particularly crucial in the field of OMFS, where proficiency in both theoretical

and practical aspects is paramount for future success in dental practice (Wang et al., 2020).

The existing literature offers insights into various motivational theories and self-efficacy frameworks, yet their application and relevance in OMFS education remain relatively underexplored. Furthermore, while quantitative studies have attempted to quantify the levels of academic motivation and self-efficacy among dental students, they often lack the depth and richness of qualitative inquiry necessary to capture the nuances of students' experiences, perceptions, and coping strategies in the challenging environment of OMFS practice. Thus, the need arises for a comprehensive investigation into the interplay between academic motivation and self-efficacy among dental students undertaking the rigors of OMFS training.

Numerous articles discuss academic motivation among dental students and self-efficacy in OMFS courses separately. However, there appears to be a gap in the literature, as no articles specifically address the combined topic of academic motivation among dental students and self-efficacy in the context of OMFS courses. This highlights the need for further research in this specific domain.

Despite their recognised importance, studies consistently show that dental students often report low self-efficacy and heightened stress when undertaking OMFS training (Ali et al., 2017; Mat Yudin et al., 2020). Ali et al. (2017) reported low competence among UK dental students in recognising and referring suspected oral cancer, while Mat Yudin et al. (2020) similarly found that nearly 30% of Malaysian final-year students lacked such experience, highlighting the need for more structured and consistent OMFS training. Similarly, while the role of motivation in sustaining academic engagement has been acknowledged, most investigations have examined motivation and self-efficacy in isolation, rather than exploring their interrelationship. This creates a gap in the literature, as understanding how motivation and self-efficacy interact may provide educators with deeper insights into the psychological underpinnings of OMFS learning. Without such knowledge, curriculum interventions may fail to holistically address the challenges faced by students, potentially limiting their readiness for professional practice.

1.2 PURPOSE OF THE STUDY

This study aims to investigate the academic motivation and self-efficacy among undergraduate clinical dental students in OMFS courses. It also aims to explore the factors influencing these elements and compare the outcomes based on gender and year of study.

1.3 RESEARCH QUESTIONS

1. What are the levels of academic motivation in OMFS courses among undergraduate clinical dental students?
2. What are the levels of students' self-efficacy in OMFS courses among undergraduate clinical dental students?
3. Are there any differences in the academic motivation and self-efficacy of OMFS courses between male and female students?
4. Is there any significant difference in the academic motivation and self-efficacy of OMFS courses among various clinical year students?
5. What are the drivers and barriers towards academic motivation and self-efficacy in OMFS courses among undergraduate clinical dental students?

1.4 RESEARCH OBJECTIVES

1.4.1 Main Objective

To investigate the academic motivation and self-efficacy among IIUM undergraduate clinical dental students in OMFS courses.

1.4.2 Specific Objectives

1. To determine the levels of academic motivation in OMFS courses among undergraduate clinical dental students using the Academic Motivation Scale (AMS).
2. To evaluate the level of student self-efficacy in OMFS courses among undergraduate clinical dental students using the Association of British Academic Oral Maxillofacial Surgeons (ABAOMS) survey.
3. To compare the academic motivation and self-efficacy of OMFS courses among undergraduate clinical dental students regarding gender.
4. To compare the academic motivation and self-efficacy in OMFS courses in each undergraduate clinical year of students.
5. To explore the drivers and barriers towards academic and self-efficacy in OMFS courses among undergraduate clinical dental students.

1.5 SIGNIFICANCE OF THE STUDY

A study examining academic motivation and self-efficacy in OMFS among dental students holds considerable significance across various domains. Firstly, it offers valuable insights into educational improvement by pinpointing areas where interventions may be needed to enhance students' learning experiences and outcomes in this crucial aspect of dental education. By uncovering factors influencing motivation and self-efficacy, educators can tailor strategies better to support students' mastery of OMFS skills.

Secondly, the study's findings may directly impact student success and performance. Academic motivation and self-efficacy are closely tied to learning outcomes and clinical skills development. A deeper understanding of these factors in oral surgery education can foster more effective teaching approaches that enhance students' academic success and readiness for real-world clinical practice.

Moreover, as OMFS skills are integral to dental practice, students' self-efficacy and motivation in this area significantly affect their preparedness for clinical work. By

identifying obstacles or facilitators to motivation and self-efficacy, the study can inform curriculum development and clinical training programs to ensure students are adequately equipped for their future roles as dental professionals.

Additionally, the study contributes to understanding student well-being and mental health within dental education. Low motivation and self-efficacy levels can adversely affect students' mental health. By shedding light on these factors specific to OMFS, the research can guide efforts to support students' well-being throughout their dental education journey.

Understanding students' self-efficacy and motivation enables educators to create stronger, more responsive support systems (Akbar & Sahibzada, 2020). These could include counselling services, peer support groups, and workshops focused on stress management and self-efficacy-building techniques (Acosta-Gonzaga, 2023). The study might also reveal differences in motivation and self-efficacy levels among students from different genders or years of study. Policies and guidelines can be tailored to address these disparities, ensuring an inclusive and supportive educational environment for all students (Utami et al., 2022).

By focusing on motivation and self-efficacy, dental education can produce more competent and confident graduates better prepared for the profession's demands. This, in turn, can enhance the overall quality of dental care provided to the public (Fine et al., 2019). The findings can also serve as a basis for further research on the impact of different educational interventions on student outcomes. This ongoing research can contribute to continuous improvement in dental education practices and policies.

Furthermore, employing a mixed-methods approach in this study enriches the scholarly understanding of motivational and psychological factors in dental education. A comprehensive exploration of these complex constructs adds depth to existing literature and fosters further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 OMFS IN DENTISTRY

OMFS is a crucial discipline within the field of dentistry that bridges the gap between medicine and dentistry, focusing on the diagnosis and surgical management of diseases, injuries, and defects involving the oral cavity, jaws, and facial structures. It is often regarded as one of the most complex and technically demanding specialties in dental education, requiring both intellectual understanding and refined psychomotor skills (Balaji & Balaji, 2023). The scope of OMFS includes procedures such as tooth extractions, management of impacted teeth, treatment of facial trauma, correction of dentofacial deformities, management of oral pathologies, and minor surgical interventions within the oral cavity (Kolokythas, 2021).

In undergraduate dental education, the OMFS curriculum aims to equip students with fundamental surgical knowledge and skills necessary for safe and effective patient care. This includes competency in local anaesthesia administration, basic exodontia, minor oral surgical techniques, and postoperative patient management (Albannaa & Almela, 2025). Exposure to OMFS also helps students integrate their understanding of anatomy, pathology, and pharmacology into clinical practice, promoting a holistic approach to patient management. However, because of its invasive nature and the potential risk of complications, such as nerve injury or postoperative infections, many students perceive OMFS as a particularly challenging subject (Al-Baghdadi & Renapurkar, 2021).

The learning experience in OMFS requires a combination of theoretical instruction, clinical observation, and hands-on practice under supervision. Clinical training provides opportunities for students to develop self-efficacy in performing surgical procedures, while also fostering professional attributes such as decision-making, manual dexterity, and stress management (Shah et al., 2018). Nevertheless, previous studies have reported that dental students often experience anxiety and reduced

self-efficacy when performing surgical tasks for the first time, particularly procedures involving the administration of inferior alveolar nerve (IAN) blocks and surgical extractions (Sakka et al., 2024). Such challenges underscore the importance of structured guidance and supportive teaching environments in cultivating both competence and self-efficacy among students.

Moreover, the learning of OMFS is closely linked to students' academic motivation, as the demanding nature of the subject often requires strong intrinsic motivation and perseverance. According to SDT, students who are intrinsically motivated tend to engage more deeply in learning activities and are more resilient in facing challenges (Deci & Ryan, 2000). Therefore, understanding how academic motivation and self-efficacy interact within the OMFS learning context can provide valuable insights for improving dental education. Enhancing students' self-efficacy and motivation in surgical training not only contributes to their academic success but also ensures the development of competent and compassionate future dental practitioners.

2.2 CONCEPT OF MOTIVATION AND SELF-EFFICACY IN EDUCATION

Motivation refers to the psychological processes that drive behaviour toward a particular goal. It encompasses the internal and external factors that stimulate, direct, and sustain behaviour (Cook & Jr., 2016). Motivation may arise from various sources, including intrinsic desires, such as personal interest or enjoyment, and extrinsic factors, such as rewards or social pressure (Guay et al., 2015). Within education, academic motivation specifically pertains to motivation within learning and academic pursuits. It involves the desire and willingness to engage in academic tasks, pursue educational goals, and persist in facing challenges (Elbyaly, 2016; Koenka, 2020).

Academic motivation and self-efficacy are pivotal in dental education and clinical practice, significantly impacting student learning experiences, clinical skills development, and overall professional competency. Firstly, academic motivation drives students' engagement in educational activities, influencing their willingness to learn, participate in coursework, and pursue academic excellence. Motivated students are

more likely to invest time and effort in their studies, leading to deeper understanding, retention of knowledge, and mastery of essential skills, including those pertinent to OMFS (Orsini et al., 2019).

Moreover, self-efficacy is equally crucial in dental education and clinical practice. Self-efficacy in one's abilities fosters a positive mindset, enabling students to approach challenges with resilience and determination (Akbari & Sahibzada, 2020; Maclellan, 2014). In OMFS courses, self-efficacy is particularly vital as it directly impacts students' readiness to perform procedures, handle complex cases, and interact with patients (Alhalawany & Alshalan, 2021). A high level of self-efficacy instils trust in one's clinical abilities, facilitating effective decision-making, communication, and patient care. Conversely, low self-efficacy may hinder students' performance, leading to increased anxiety, hesitancy in clinical settings, and potential setbacks in patient outcomes (Wang et al., 2020).

Furthermore, academic motivation and self-efficacy are intertwined, forming a symbiotic relationship that reinforces students' learning and professional development. Motivation fuels the drive to acquire knowledge and skills, while self-efficacy empowers students to apply and demonstrate their competencies in clinical settings. As student progress through their dental education, cultivating motivation and self-efficacy becomes essential for building a solid foundation for successful clinical practice (Shofiah et al., 2023).

In clinical practice, the importance of academic motivation and self-efficacy extends beyond the classroom, shaping dentists' ability to deliver high-quality patient care (Wang et al., 2020). Confident and motivated practitioners are better equipped to navigate the complexities of OMFS, adapt to evolving patient needs, and pursue lifelong learning to stay abreast of advancements in the field (Al-Dajani, 2015; Innes & Hurst, 2012). Positive experiences, such as successful procedure completion under supervision and constructive feedback, reinforce students' belief in their capabilities, bolstering their self-assurance (Vasquez et al., 2016). Fostering academic motivation and self-efficacy in dental education cultivates competent, compassionate, and resilient professionals prepared to excel in the demanding and rewarding realm of clinical practice (Kamal & Abdulwahab, 2021).

2.3 THEORETICAL FRAMEWORKS

2.3.1 SELF DETERMINATION THEORY (SDT)

SDT is a comprehensive psychological framework developed by Edward Deci and Richard Ryan in 1995. It focuses on human motivation and personality development, emphasizing the role of three basic psychological needs: autonomy, competence, and relatedness (Van et al., 2012). The self-determination continuum is a concept within SDT that describes the varying degrees of motivation along a spectrum, ranging from intrinsic to extrinsic motivation. At one end of the continuum are intrinsically motivated behaviours performed for their inherent enjoyment, satisfaction, or interest. The individual's internal desires drive these behaviours and are not contingent on external rewards or pressures (Deci et al., 2017; Ryan & Deci, 2019).

Moving along the continuum, behaviours can become increasingly extrinsically motivated, meaning they are performed to attain external rewards or avoid punishment. Extrinsic motivation encompasses several levels, including integrated regulation, which represents the highest level of extrinsic motivation, where individuals engage in behaviours fully integrated into their sense of self and identity. These behaviours are aligned with personal values and goals, reflecting a deep internalization of their significance (Guay et al., 2015). Moving down the continuum, identified regulation involves engaging in activities because they are personally valued or seen as important for achieving desired outcomes. While still extrinsically motivated, individuals at this level understand the significance of the behaviours and willingly choose to pursue them (Howard et al., 2021).

In contrast, introjected regulation entails engaging in behaviours to avoid guilt, shame, or anxiety or to enhance self-esteem. Here, motivation stems from internal pressures or ego involvement, such as feelings of obligation or the desire to maintain a positive self-image (Van den Broeck et al., 2013). Finally, external regulation represents the lowest level of extrinsic motivation, where individuals engage in activities solely to

obtain external rewards or avoid punishment. At this level, behaviour is entirely driven by external factors, such as rewards, praise, or approval from others (Deci et al., 2017).

At the far end of the continuum are amotivated behaviours, meaning they lack any sense of motivation or intentionality. These behaviours may occur when individuals perceive a lack of control or competence, feel overwhelmed, or experience disinterest or apathy (Guay et al., 2015).

Figure 2.1 illustrates the self-determination continuum, showcasing the range from intrinsic to extrinsic motivation. The continuum represents different types of motivation based on the degree to which they are self-determined, ranging from amotivation through various forms of extrinsic motivation (external regulation, introjection, identification, and integration) to intrinsic motivation.

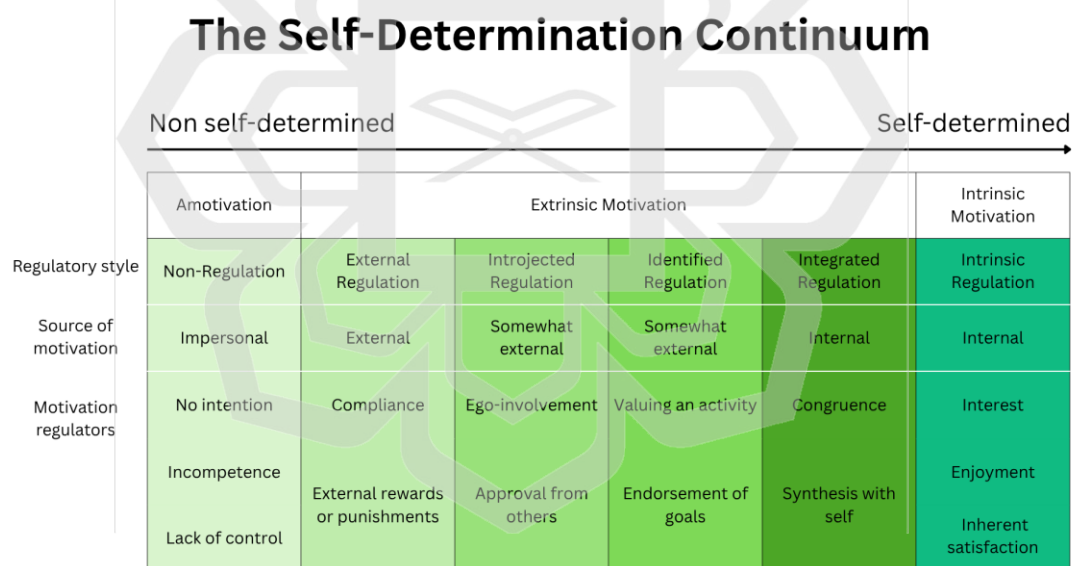


Figure 2.1: The Self-Determination Continuum of Motivation (*Adapted from Ryan & Deci, 2000*)

2.3.2 Bandura's Self-Efficacy Theory

Bandura's self-efficacy theory is a cornerstone of social cognitive theory, integral to understanding human behaviour and motivation. Self-efficacy refers to an individual's belief in their ability to execute actions necessary to achieve specific performance attainments (Bandura, 1986). This concept is particularly relevant in dental education, where self-efficacy can significantly influence students' learning, performance, and self-efficacy in handling clinical procedures such as oral and maxillofacial surgery (Co & Colina, 2024).

Self-efficacy is the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations (Bandura, 1986). It affects how people think, feel, and act, and is considered a key determinant of behaviour and motivation (Soland, 2019). Unlike general self-efficacy, which is broader and more generalized, self-efficacy is specific to particular tasks and contexts (Siefer et al., 2021).

Figure 2.2 shows the theory of self-efficacy that Albert Bandura proposed. Bandura identified four primary sources of self-efficacy. Mastery experiences, or direct experiences of success, are the most influential source, as they provide tangible evidence of one's capabilities. Vicarious experiences, or observing others' successes, can also enhance self-efficacy by providing models to emulate. Verbal persuasion, which involves encouragement and positive feedback, helps reinforce one's belief in their abilities. Lastly, emotional and physiological states can influence self-efficacy, where positive emotions and physical well-being can boost self-efficacy, while stress and fatigue can diminish it (Bandura, 1986).

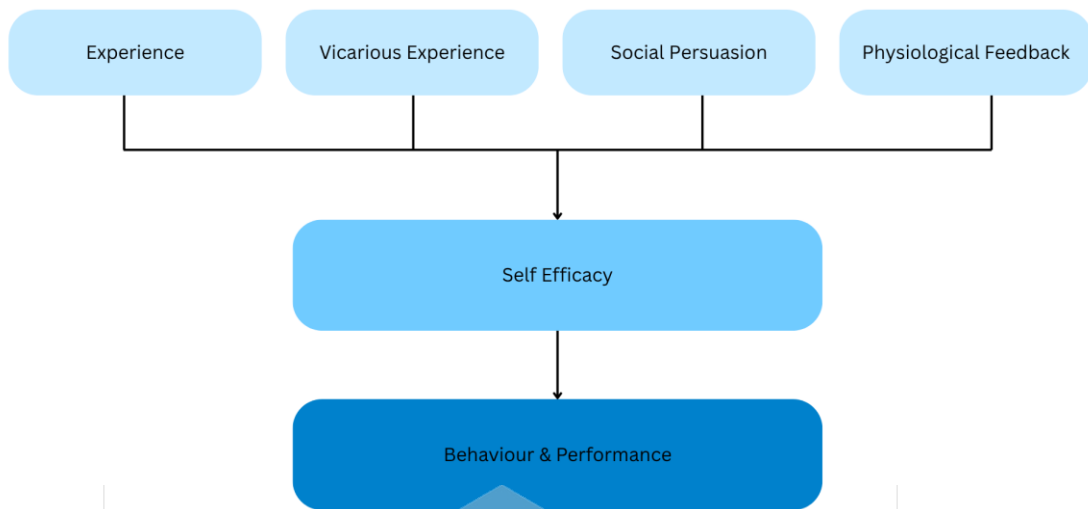


Figure 2.2: Conceptual Framework on Factors Influencing Self-Efficacy
(Adapted from Bandura, 1997)

Self-efficacy influences dental students' learning approach and performance in clinical settings (Baaij et al., 2019). High self-efficacy is associated with increased motivation and perseverance in challenging tasks, greater willingness to engage in and complete complex procedures, enhanced problem-solving skills and adaptability, and reduced anxiety and stress during clinical practice (Burr & Beck Dallaghan, 2019). This is particularly critical in oral and maxillofacial surgery, where self-efficacy in one's skills can directly impact patient care and outcomes (Braun et al., 2020).

Oral and maxillofacial surgery is a complex and demanding dental education that requires high skill and self-efficacy. Self-efficacy is crucial for students to approach surgical tasks confidently, learn from mistakes without becoming discouraged, seek opportunities for practice and improvement, and interact effectively with patients during procedures. Therefore, building self-efficacy in this area involves providing students with ample opportunities for hands-on practice and structured feedback (Panagiotidou et al., 2024).

Enhancing self-efficacy in dental students involves leveraging the four sources of self-efficacy identified by Bandura. Providing ample opportunities for practice through simulations and real-life clinical experiences is essential (Ayaz & Ismail, 2022).

Role modelling and mentorship programs can effectively provide vicarious experiences (Nikočević-Kurti, 2021). Regular and positive feedback from instructors and peers can reinforce students' self-belief (Peifer et al., 2020). Stress management and resilience training can help students maintain a positive mindset, enhancing their self-efficacy (Dossett et al., 2021).

Educators and curriculum developers should focus on creating learning environments that enhance self-efficacy. This includes providing supportive feedback, observational learning opportunities, and stress management resources (Peifer et al., 2020; Dossett et al., 2021; Ayaz & Ismail, 2022). Developing students' self-efficacy can lead to more competent, confident, and resilient dental professionals (Panagiotidou et al., 2024). By addressing the key sources of self-efficacy, dental education programs can better prepare students for the challenges of clinical practice, ultimately leading to improved patient care and professional satisfaction (Braun et al., 2020).

2.4 RELATIONSHIP BETWEEN ACADEMIC MOTIVATION AND SELF-EFFICACY

Figure 2.3 represents a conceptual framework that illustrates the various factors influencing academic performance. Central to this model are the constructs of motivation and self-efficacy, which are shown to significantly impact different types of engagement (Acosta-Gonzaga, 2023). Motivation, which drives a student's willingness to participate and persist in learning activities (Linnenbrink-Garcia, 2016), and self-efficacy, which reflects a student's overall sense of self-worth and self-efficacy (Rosenberg, 1979; Rosenberg, 1995), are depicted as foundational elements that influence other aspects of the learning process.

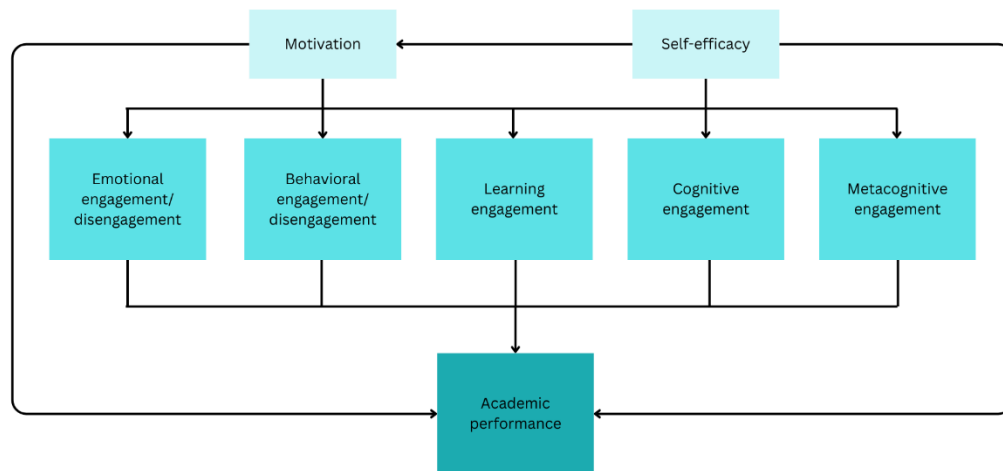


Figure 2.3: Conceptual Framework on Factors Influencing Academic Performance
(Adapted from Acosta-Gonzaga, 2023)

Motivation directly affects four engagement types: emotional, behavioural, cognitive, and metacognitive. Emotional engagement refers to the student's emotional responses to learning, such as interest, boredom, or anxiety (Skinner & Belmont, 1993; Fredricks et al., 2004). Behavioural engagement involves the observable actions and participation in learning activities, like attendance, effort, and participation (Skinner et al., 2008; Reschly & Christenson, 2012; González et al., 2016; Reschly, 2020). Cognitive engagement relates to the mental investment and strategies used for learning, including deep thinking and understanding (González et al., 2016). Metacognitive engagement concerns self-regulation and the awareness of one's learning processes (Fredricks et al., 2004; Greene, 2015). Motivation indirectly impacts academic performance through these engagements, making it a critical factor in the educational process.

Similarly, self-efficacy directly influences emotional, behavioural, cognitive, and metacognitive engagement (Acosta-Gonzaga, 2023). A student's belief in their abilities and self-worth can significantly affect how they approach learning tasks and their persistence in overcoming challenges. Like motivation, self-efficacy indirectly contributes to academic performance by shaping students' engagement with their studies. High self-efficacy can lead to more positive emotional responses, proactive

behaviour, and effective learning strategies, all of which enhance academic outcomes (Zhao et al., 2021).

Emotional engagement or disengagement, influenced by motivation and self-efficacy, directly impacts academic performance (Acosta-Gonzaga, 2023). Positive emotional engagement can lead to a more enjoyable and fulfilling learning experience, improving performance (Liu et al., 2024). Conversely, emotional disengagement can result in negative attitudes and a lack of interest, detracting from academic success (Chitrakar & P.M., 2023). Behavioural engagement or disengagement follows a similar pattern, with active participation and effort crucial for achieving good academic results (Nguyen et al., 2016). Motivation and self-efficacy foster this engagement, highlighting their importance in promoting productive behaviours.

Learning engagement is central to the model and directly affects academic performance (Liu et al., 2023). Both motivation and self-efficacy influence this form of engagement and interact with emotional, behavioural, cognitive, and metacognitive engagements (Wolters & Taylor, 2012). Integrating these engagements ensures a comprehensive approach to learning, where emotional well-being, active participation, deep thinking, and self-regulation are all considered (Van Tonder et al., 2022). This holistic engagement is vital for achieving high academic performance, demonstrating the interconnectedness of these factors.

Cognitive and metacognitive engagements also significantly influence academic outcomes (Barlow et al., 2020; Hassan et al., 2022). Cognitive engagement, which involves deep processing and understanding of information, is essential for meaningful learning and retention (Barlow et al., 2020). Metacognitive engagement, conversely, involves self-monitoring and regulation of one's own learning strategies, leading to more effective study habits and problem-solving skills (Hassan et al., 2022). Both types of engagement are influenced by motivation and self-efficacy, reinforcing the importance of these psychological factors in fostering effective learning behaviours.

Ultimately, the figure illustrates that academic performance results from a complex interplay between motivation, self-efficacy, and various forms of engagement. Emotional, behavioural, learning, cognitive, and metacognitive engagements are all

pathways through which motivation and self-efficacy exert their influence. Educators and learners can develop strategies to enhance academic performance and overall educational experiences by understanding and addressing these interconnections. This framework underscores the need for a supportive learning environment that nurtures motivation and self-efficacy while promoting diverse forms of engagement (Acosta-Gonzaga, 2023).

2.5 FACTORS INFLUENCING ACADEMIC MOTIVATION IN DENTAL STUDENTS

Several key factors shape academic motivation in dental students, each contributing to their overall engagement and success. First, curriculum design is fundamental, where a well-structured curriculum that seamlessly integrates both practical and theoretical knowledge enhances motivation by making learning more relevant and engaging (Abbasi et al., 2019). Second, the teaching methods employed can significantly impact motivation. Interactive and hands-on approaches, such as problem-based learning (PBL) and simulation exercises, provide practical, real-world applications of theoretical concepts, thereby increasing student engagement (Orsini et al., 2016).

Additionally, assessment and feedback play a crucial role. Continuous and constructive feedback helps students track their progress and identify improvement areas, which maintains and boosts their motivation (Cabbar et al., 2019; Kamal & Abdulwahab, 2021). Peer influence and support also contribute positively, as positive peer interactions and a collaborative learning environment foster a sense of community and shared goals (Ticoalu et al., 2024).

Moreover, early and frequent clinical exposure allows students to see the relevance of their studies in real-life scenarios, which increases their motivation to learn and succeed. Guidance from experienced mentors and exposure to successful role models in the field can further inspire and motivate students to strive for excellence (Surapaneni, 2024). Lastly, students' intrinsic interest in the subject and long-term

career aspirations are powerful motivators, driving them to engage deeply with the material and excel academically (Che Musa et al., 2015).

2.6 FACTORS INFLUENCING SELF-EFFICACY IN DENTAL STUDENTS

Research on self-efficacy in performing OMFS among dental students and practitioners has explored various dimensions, including training methods, experiential learning, and psychological factors. A study by Karayazgan-Saracoglu et al. (2018) used a cross-sectional survey to assess the self-efficacy of dental students in performing OMFS procedures. The survey included questions about specific surgical tasks, such as tooth extraction and suturing. The study found that self-efficacy increased with the number of procedures performed and the amount of clinical exposure. Senior students reported higher self-efficacy levels compared to junior students. Hands-on experience was identified as a critical factor in building self-efficacy. This study underscores the importance of practical, hands-on training in dental education to enhance self-efficacy in performing OMFS.

Chapnick et al. (2007) conducted a longitudinal study design, following dental students through their clinical training years. Self-assessment surveys were administered at multiple points to measure changes in self-efficacy. The results showed a significant increase in self-efficacy as students progressed through their clinical training. The study also found that feedback from instructors and peers played a crucial role in boosting self-efficacy. Highlighting the impact of structured clinical training and constructive feedback, this study suggests that continuous assessment and supportive feedback mechanisms are essential for developing self-efficacy in OMFS.

Patel et al. (2014) utilized a mixed-methods approach, combining quantitative surveys and qualitative interviews. The participants included both dental students and practicing dentists. The survey assessed self-efficacy in various OMFS procedures, while interviews explored personal experiences and perceptions. The study found that self-efficacy was generally higher among practitioners than students, with experience being a significant contributing factor. Additionally, mentorship and observation of

experienced surgeons were highlighted as important for building self-efficacy. Emphasizing the role of experience and mentorship, this study suggests that incorporating mentorship programs and opportunities for observing experienced surgeons can enhance self-efficacy in OMFS.

Bower et al. (2019) conducted a randomized controlled trial (RCT) to compare the self-efficacy levels of students who underwent traditional training versus those who received simulation-based training. Self-efficacy was measured using a validated questionnaire before and after the training sessions. The study found that students who received simulation-based training reported higher self-efficacy levels than those who underwent traditional training. Simulation allowed students to practice risk-free, significantly enhancing their self-efficacy. This study highlights the effectiveness of simulation-based training in dental education, suggesting that integrating simulation technology can improve self-efficacy in performing OMFS.

Mentorship and peer learning also play critical roles in building self-efficacy. Patel et al. (2014) highlighted the importance of mentorship in their study. Dental students and practitioners with mentors reported higher self-efficacy levels and better performance. Additionally, peer learning and observation of experienced surgeons were crucial in developing self-assuredness in clinical procedures.

Ahmad et al. (2020) conducted a cross-sectional study using a survey to assess self-efficacy among dental students and recent graduates. The survey included questions about the perceived difficulty of various surgical procedures and the factors contributing to their self-efficacy levels. The study found that self-efficacy was higher for simpler procedures and lower for more complex surgeries. Factors such as the quality of instruction, availability of resources, and personal attitudes towards learning were identified as significant influences on self-efficacy. This study suggests that tailored training that addresses complex and straightforward procedures, improving instructional quality and resource availability, can enhance overall self-efficacy in OMFS.

These studies collectively indicate that combining hands-on experience, structured clinical training, mentorship, feedback, and innovative training methods like

simulation influences self-efficacy in performing OMFS. Dental education programs can enhance self-efficacy by providing ample practical opportunities, supportive feedback, mentorship, and advanced training technologies.

2.7 MEASUREMENT TOOLS: AMS AND ABAOMS INSTRUMENTS

2.7.1 Academic Motivation Scale (AMS)

The AMS is a widely used tool in educational research to assess students' motivation levels in various academic settings. Developed by Vallerand et al. (1992), the AMS is based on SDT principles and measures different types of motivation along a continuum from intrinsic to extrinsic and amotivation. This scale consists of 28 items, divided into seven subscales: three subscales for intrinsic motivation (towards knowledge, towards accomplishment, and towards stimulation), three subscales for extrinsic motivation (external regulation, introjection, and identification), and one subscale for amotivation (Vallerand et al., 1992).

Research using the AMS has shown that it is a reliable and valid instrument for measuring academic motivation across different cultural contexts and educational levels (Utvær & Haugan, 2016; El-Sayed et al., 2024). Studies have demonstrated that high intrinsic motivation, as measured by the AMS, is associated with better academic performance, greater persistence, and higher levels of well-being among students. Conversely, high levels of extrinsic motivation, particularly external regulation, are often linked to lower satisfaction and engagement (Orsini et al., 2019; Wang, 2024).

The AMS has been applied in various disciplines, including dental education, to explore how motivation influences learning outcomes. For dental students, intrinsic motivation is often linked to a genuine interest in patient care and mastering clinical skills. In contrast, extrinsic motivation might be driven by the desire to achieve high grades or secure prestigious residencies (Yanko et al., 2024). Understanding these motivational dynamics helps educators tailor their instructional approaches to foster more intrinsic motivation, which is associated with deeper learning and better long-term retention of knowledge (Orsini et al., 2019).

Furthermore, the AMS can identify unmotivated students and help design interventions to re-engage them. By recognizing the types and levels of motivation through the AMS, educators and administrators can implement strategies to create more supportive and motivating educational environments. This could include providing more autonomy in learning, creating meaningful and relevant coursework, and offering feedback that enhances students' sense of competence and relatedness (Pascual-Mariño et al., 2024). Overall, the AMS is a crucial tool for understanding and enhancing academic motivation, ultimately improving student educational experiences and outcomes (Rymbai & Deka, 2024; Malik et al., 2024).

The college version of the AMS (AMS-C28) explicitly assesses college students' motivation, providing valuable insights into their academic behaviours and outcomes (Vallerand et al., 1992; Rymbai & Deka, 2024). The AMS typically uses a 7-point Likert scale for respondents to rate their agreement with various statements related to their academic motivation. The 7-point Likert scale depicted in Figure 2.4 is commonly used in the AMS-C28. The scale ranges from 1, meaning "Does not correspond at all," to 7, meaning "Corresponds exactly" (Vallerand et al., 1992).

Does not correspond at all	Corresponds a little		Corresponds moderately	Corresponds a lot		Correspond exactly
1	2	3	4	5	6	7

Figure 2.4: 7-point Likert Scale in AMS-C28 (*Adapted from Vallerand et al., 1992*)

To calculate the total score for each subscale of the AMS-C28, the scores of all items within each subscale are summed (Vallerand et al., 1992). For instance, the scores for items 1, 7, 13, and 19 are summed to calculate the total score for the intrinsic motivation to know subscale. Higher total scores for a subscale indicate a more substantial presence of that particular type of motivation (El-Sayed et al., 2024). Figure 2.5 lists the items for each conceptual category.

Conceptual category	Questions of items
Intrinsic motivation- To know	2, 9, 16, 23
Intrinsic motivation- Toward accomplishment	6, 13, 20, 27
Intrinsic motivation- To experience stimulation	4, 11, 18, 25
Extrinsic motivation- Identified	3, 10, 17, 24
Extrinsic motivation- Introjected	7, 14, 21, 28
Extrinsic motivation- External regulation	1, 8, 15, 22
Amotivation	5, 12, 19, 26

Figure 2.5: Lists of items for each conceptual category (*Adapted from Vallerand et al., 1992*)

Understanding the role of gender in academic motivation is crucial for developing educational strategies that promote equitable learning experiences for all students (Ayhan & Karacan, 2024). Research often indicates that female students report higher levels of intrinsic motivation than their male counterparts. For instance, studies by Ayhan & Karacan (2024) and Rymbai & Deka (2024) found that females are more likely to learn for inherent satisfaction and interest in the subject matter. Males tend to have higher identified regulation, meaning they are more likely to engage in academic tasks because they personally endorse and value the outcomes (Rymbai & Deka, 2024). Research indicates that males are also more likely to experience amotivation, lacking

the intention to act, often due to feelings of incompetence or lack of relevance (Jeppu et al., 2024).

2.7.2 ABAOMS Survey for Self-efficacy in OMFS

Self-efficacy in dental students, particularly in OMFS, is influenced by several key factors. Clinical exposure and hands-on practice are paramount, where direct experience in performing surgical procedures and making clinical decisions significantly boosts self-efficacy (Gaballah et al., 2023; Ali et al., 2016; Ali et al., 2017; Ali et al., 2018; Mat Yudin et al., 2020). This is often facilitated through simulation-based training and real-life clinical rotations, which provide a safe environment for students to hone their skills (Ali et al., 2016). Mentorship and supervision also play a critical role, where guidance from experienced mentors offers students support and feedback, helping them build self-efficacy in their abilities (Ali et al., 2016). A competency-based education system ensures that students achieve specific skill levels, further enhancing their self-efficacy by confirming their preparedness for real-world practice (Gaballah et al., 2023; Lin & Muhamad Halil, 2024).

Additionally, the quality and frequency of feedback are essential. Constructive feedback helps students recognize their strengths and areas needing improvement, fostering a continuous learning process that builds self-efficacy (Karimi & Saadatmand, 2014; Ali et al., 2016). The support of peers and a positive learning environment also contribute; encouragement from classmates and a collaborative atmosphere can reinforce a student's belief in their capabilities (Ali et al., 2017). Finally, personal factors such as intrinsic motivation and a strong sense of purpose in their chosen career path can drive students to persist through challenges and build self-efficacy in their skills and knowledge (Karimi & Saadatmand, 2014; Khalaf et al., 2022). Together, these factors create a comprehensive support system that enhances dental students' self-efficacy, preparing them for successful clinical practice.

Previous studies have highlighted the importance of self-efficacy in dental education, particularly in specialised fields such as OMFS. The Association of British Academic Oral and Maxillofacial Surgeons (ABAOMS) educational committee

developed a validated survey instrument to measure self-efficacy among dental students quantitatively. This tool has been employed internationally, providing valuable insights into the preparedness of dental students in various educational contexts (Macluskey et al., 2016; Cabbar et al., 2019; Burdurlu et al., 2020; Kamal & Abdulwahab, 2021). Studies utilizing this survey have demonstrated its reliability and effectiveness in identifying areas where students may require additional training and support.

The ABAOMS instrument consists of 17 questions that evaluate the student's self-efficacy in performing OMFS procedures, the importance of outreach in oral surgery, the teaching of anatomy related to oral surgery, and the student's career aspirations. These domains include minor oral surgery procedures such as tooth extractions, management of retained visible roots, and handling complications from failed extractions, which involve raising a mucoperiosteal flap, bone removal, root sectioning, and wound suturing. Additionally, the survey assesses students' self-efficacy in diagnosing and managing acute pericoronitis, managing postoperative haemorrhage from a socket, and assessing impacted third molars according to clinical guidelines. Furthermore, it evaluates the recognition of potentially malignant and malignant lesions in the oral cavity. Responses to the survey questions are collected using a Likert scale, which provides a nuanced assessment of students' self-efficacy levels. The scale includes five options ranging from strongly disagree (1) to strongly agree (5), as detailed in Figure 2.6. (Macluskey et al., 2016; Cabbar et al., 2019; Burdurlu et al., 2020; Kamal & Abdulwahab, 2021).

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Figure 2.6: 5-point Likert Scale in ABAOMS instrument

2.8 CONTEMPORARY APPROACHES IN DENTAL EDUCATION

Few studies have collectively highlighted the dynamic evolution of dental education, driven by technological advancements and innovative pedagogical models. A study by Taysi et al. (2024) explores the efficacy of a simulation model in OMFS education. The findings indicate that simulation enhances clinical skills, reduces anxiety, and improves student self-efficacy. The methodology involves a comprehensive literature review and analysis of training on a tooth extraction model (TEM) in view of undergraduate dental students' experience and perception of their education. This study is relevant as it highlights the critical role of simulation in bridging the gap between theoretical knowledge and practical application, making it an essential component of contemporary dental education.

Chen et al. (2024) investigate the impact of the flipped classroom (FC) model on dental education. Their findings show that this model leads to improved learning

outcomes, higher engagement, and better information retention. The study employs a quasi-experimental design, comparing the students' skills in administering local anaesthesia (LA) from traditional and flipped classroom settings. The relevance of this study lies in its demonstration of how the flipped classroom model can maximize in-class learning time and promote active learning, which is increasingly important as dental education embraces digital tools.

Zaidi et al. (2024) examine the effectiveness of problem-based learning (PBL) in dental education. Their findings suggest that PBL enhances critical thinking, self-directed learning, and student collaboration. The study uses surveys with third- and final-year undergraduate dental students to investigate and compare dental students' perceptions regarding case-based learning (CBL) and PBL. This study is relevant because it aligns with the goals of modern dental education, fostering skills necessary for lifelong learning and professional development despite the challenges of resource intensity and the need for trained facilitators.

Haresaku et al. (2024) focus on developing interprofessional education (IPE) in nursing care and oral healthcare for dental and nursing students. Their findings indicate that IPE improves teamwork, communication, and holistic patient care understanding among nursing and dental students. The methodology includes a national survey to gather data on the extent and nature of IPE activities in these programs. The relevance of this study is significant, as it prepares dental students for collaborative practice in a healthcare environment that increasingly values interdisciplinary approaches to patient care, although implementation varies widely across programs.

Ali et al. (2024) evaluate the performance of Chat Generative Pre-trained Transformer (ChatGPT), a generative AI-based application, in dental education. Their findings reveal that the ChatGPT program accurately answered most knowledge-based evaluations using MCQs, SAQs, SEQs, true/false, and fill-in-the-blank items. However, it could only respond to text-based queries, where processing of queries based on images was not supported. Written assignment responses were also satisfactory except for those for the critical literature evaluation. This study is relevant, as it emphasizes the need for dental education to adapt to technological advancements to enhance learning and keep pace with developments in dental practice.

2.9 METHODOLOGICAL APPROACHES IN THE LITERATURE

Research on academic motivation among dental students has been extensive, focusing on factors such as intrinsic and extrinsic motivations, the impact of the educational environment, and the influence of personal and sociodemographic variables. Several key studies have contributed to understanding these dynamics, each with unique methodologies and significant findings relevant to dental education.

The study by Orsini et al. (2016) utilized a mixed-methods approach, combining quantitative surveys and qualitative interviews. The AMS measured dental students' intrinsic and extrinsic motivation and amotivation. The findings indicated that intrinsic motivation was higher among students who perceived their educational environment positively. Critical factors fostering intrinsic motivation included autonomy, competence, and relatedness. This study highlights the importance of a supportive educational environment in enhancing intrinsic motivation, suggesting that dental schools should focus on creating a positive and engaging learning atmosphere.

Albaili's (1997) research employed a cross-sectional survey using the Motivated Strategies for Learning Questionnaire (MSLQ) among dental students in the UAE. The study identified self-efficacy and intrinsic goal orientation as significant predictors of academic performance, while extrinsic motivation showed a weaker correlation with academic success. This study emphasises the role of self-efficacy and intrinsic goals in academic achievement, implying that interventions to boost self-efficacy could improve performance among dental students.

Komarraju et al. (2009) conducted a survey to assess the motivational orientations of dental students using the MSLQ. The results indicated that students with higher intrinsic motivation and self-regulation skills had better academic outcomes, whereas extrinsic motivation had less influence on academic success. These findings underscore the need for educational strategies that enhance intrinsic motivation and self-

regulation skills, suggesting that curriculum design should incorporate elements that foster these attributes.

Deci et al. (1991) conducted a longitudinal study tracking dental students' motivation over their academic careers using the AMS and interviews. The study found that students' intrinsic motivation tends to decline over time, with a corresponding increase in extrinsic motivation and amotivation, particularly during stressful periods. This study suggests the importance of continuous support and motivational interventions throughout the dental curriculum to maintain and enhance intrinsic motivation.

Henzi et al. (2007) employed a mixed-methods approach, with surveys and focus groups, to explore the factors influencing motivation among dental students. The study revealed that clinical experience, instructor feedback, and the coursework's perceived relevance were significant motivators, while high stress and workload levels were demotivating factors. These findings highlight the need for balance in dental education, ensuring that clinical experiences are meaningful, that students receive constructive feedback, and that stress levels are managed.

These studies collectively suggest that both intrinsic and extrinsic factors influence dental students' motivation, with a strong emphasis on the role of a supportive and engaging educational environment. Educational institutions can enhance student motivation by fostering a sense of autonomy, competence, and relatedness, providing continuous support, and creating a curriculum that balances academic rigor with manageable stress levels. Interventions to boost self-efficacy and intrinsic motivation can lead to better academic outcomes and a more fulfilling educational experience for dental students.

2.10 INTERPLAY BETWEEN MOTIVATION, SELF-EFFICACY, AND ACADEMIC OUTCOMES

The relationship between academic motivation, self-efficacy, and student performance in dental education has been a focus of extensive research. Understanding these dynamics is crucial for developing effective educational strategies and interventions. Intrinsic and extrinsic motivation play significant roles in dental education. According to Deci and Ryan's SDT (2000), intrinsic motivation involves engaging in activities for their inherent satisfaction, while extrinsic motivation involves engaging in activities for external rewards or pressures. Studies, such as the one by Orsini et al. (2016), have shown that intrinsic motivation is associated with deeper learning and better academic performance. For instance, dental students who are intrinsically motivated tend to perform better academically and report higher satisfaction with their education.

The impact of the educational environment on motivation is well-documented. Albaili (1997) conducted research among dental students in the UAE and found that a positive educational environment enhances intrinsic motivation, improving academic performance. The study emphasized the role of supportive faculty, constructive feedback, and a collaborative learning environment in fostering motivation. Similarly, Orsini et al. (2016) reinforced the importance of the educational environment, finding that autonomy-supportive environments, where students feel their opinions and preferences are valued, significantly boost intrinsic motivation and academic performance.

Self-efficacy in performing clinical procedures directly impacts students' performance in dental education. A study by Karayazgan-Saracoglu et al. (2018) found that self-efficacy in performing clinical procedures directly impacts students' performance in OMFS. Students with more hands-on experience and higher self-efficacy were more proficient in clinical tasks. Chapnick et al. (2007) also conducted longitudinal research indicating that self-efficacy improves with clinical experience and feedback. Students who received regular, constructive instructor feedback significantly enhanced their self-efficacy and clinical performance.

2.11 STRENGTHS AND LIMITATIONS OF EXISTING RESEARCH

The studies on academic motivation and self-efficacy in dental education utilize diverse methodologies, which is a significant strength. For instance, Orsini et al. (2016) employed a mixed-methods approach, combining quantitative surveys with qualitative interviews. This methodology provides a comprehensive understanding by capturing numerical data and personal experiences, offering a robust analysis. Similarly, Bower et al. (2019) used an RCT, which is considered the gold standard for evaluating interventions. This methodology ensures the reliability of the results, attributing improvements in self-efficacy and clinical skills to the intervention, which is simulation-based training, rather than other variables.

Longitudinal studies, such as those conducted by Chapnick et al. (2007) and Deci et al. (1991), track changes in self-efficacy and motivation over time. These studies provide valuable insights into how these factors evolve throughout dental education. Longitudinal data offer a dynamic view of student development and the long-term effectiveness of educational strategies, highlighting the progression of self-efficacy and academic motivation over extended periods.

Another notable strength is a strong focus on practical experience. For example, Karayazgan-Saracoglu et al. (2018) emphasized the critical role of hands-on experience in building self-efficacy. This focus aligns well with the practical nature of dental education, where developing clinical skills is paramount. Similarly, Patel et al. (2014) included dental students and practicing dentists, offering a broader perspective on developing self-efficacy and the significance of mentorship and peer learning.

The relevance of these studies to educational practice is significant. Schunk and Pajares (2005) reviewed various motivational interventions and their effectiveness, providing actionable insights for educators to enhance student motivation. This study's findings are directly applicable to curriculum design and teaching practices, suggesting specific strategies that can be implemented to maintain high levels of academic motivation among dental students.

Despite their strengths, the reviewed studies also have several weaknesses. One major limitation is the potential for limited generalizability. For example, the studies by Orsini et al. (2016) and Karayazgan-Saracoglu et al. (2018) were conducted in specific cultural and institutional contexts, which may limit the applicability of their findings to other settings. Educational systems and cultural attitudes towards education can vary significantly, affecting the relevance of these results in different environments. Similarly, Albaili's (1997) focus on dental students in the UAE may not fully represent students' experiences in other regions or educational settings.

Another significant issue is the reliance on self-reported data, which can introduce response bias. Studies such as Chapnick et al. (2007) and Patel et al. (2014) relied heavily on self-assessment surveys. Students may overestimate or underestimate their self-efficacy and motivation, leading to inaccurate data. Additionally, Karayazgan-Saracoglu et al. (2018) used self-reported surveys, which can be influenced by social desirability bias, where participants respond in ways they believe are expected rather than reflecting their true feelings.

Some studies have a short-term focus, limiting the understanding of educational interventions' long-term effects. For example, while the RCT conducted by Bower et al. (2019) provides strong evidence for the effectiveness of simulation-based training, it may have a short-term focus. Long-term follow-up is needed to determine if the increased self-efficacy and improved clinical skills are sustained. Similarly, Schunk and Pajares (2005) reviewed various motivational interventions but did not account for the long-term sustainability of these interventions' effects.

Finally, the lack of control for confounding variables is a notable weakness in some studies. Deci et al. (1991), while providing valuable longitudinal data, might not have controlled for all potential confounding variables that could influence motivation and self-efficacy, such as personal life events or changes in educational policies. Additionally, Patel et al. (2014) conducted mixed-methods research, which can be complex. Ensuring consistency across qualitative and quantitative data collection and analysis can be challenging, and differences in the interpretation of interview data can affect the study's reliability.

While existing studies provide valuable theoretical and empirical insights into academic motivation and self-efficacy among healthcare students, several limitations remain. Much of the literature is based on medical student populations in Western contexts, which may limit the transferability of findings to Malaysian undergraduate dental education. Dental training differs structurally from medical education, particularly in its emphasis on early procedural competence, fine motor skills, and individual patient management. These distinctions suggest that motivational processes and task-specific self-efficacy may manifest differently in dental settings. Furthermore, limited research has examined these constructs within Malaysian clinical environments, where cultural expectations, curriculum design, and patient demographics may shape students' experiences. Therefore, discipline-specific and context-sensitive investigation is warranted. Bansal & Pagidas, (2025) found that academic motivation was positively associated with clinical performance among medical students. This finding is relevant to the present study as it suggests that motivational factors may influence clinical competence. However, the study focused on medical students in Western institutions, and the applicability of these findings to Malaysian dental students—whose clinical exposure and assessment structures differ—remains unclear.

Mixed-method approaches in research combine quantitative and qualitative techniques to provide a comprehensive understanding of a given phenomenon. This methodological strategy leverages the strengths of both approaches: the objectivity and generalizability of quantitative methods and the depth and contextual richness of qualitative methods.

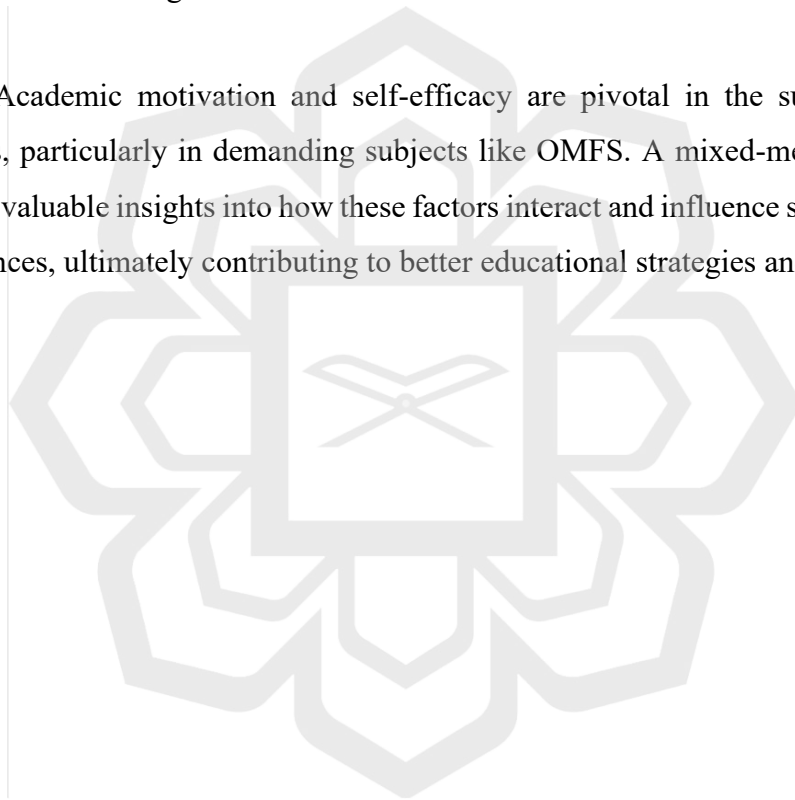
Quantitative research uses surveys and standardized assessments to measure variables like academic motivation and self-efficacy, offering statistical insights and enabling comparisons across different groups. We use the AMS and the ABAOMS survey to gather quantitative data for this research. Qualitative methods, such as interviews and focus group discussions, delve deeper into participants' experiences, perceptions, and the meanings they ascribe to these experiences. For this research, we use the Focus Group Discussions (FGD).

This combination allows for data triangulation, enhancing the findings' validity and reliability. Mixed-method research is particularly beneficial in educational settings,

such as dental education, where understanding the interplay between measurable outcomes, such as exam scores and clinical performance, and personal experiences, such as student motivation and self-efficacy, is crucial. By integrating these methods, researchers can gain a more holistic and nuanced understanding of complex educational phenomena, ultimately informing better educational practices and policies.

Despite the extensive research on academic motivation and self-efficacy, there are still gaps in understanding dental students' specific challenges in OMFS. Future studies should focus on longitudinal designs to track changes over time and the impact of innovative teaching methods on these variables.

Academic motivation and self-efficacy are pivotal in the success of dental students, particularly in demanding subjects like OMFS. A mixed-methods study can provide valuable insights into how these factors interact and influence students' learning experiences, ultimately contributing to better educational strategies and outcomes.



CHAPTER THREE

METHODOLOGY

3.1 ETHICAL CONSIDERATION

Before the investigation began, the IIUM Research Ethics Committee (IREC) ethical approval was obtained for this research project (ID No: IREC 2024-046). All participating students were provided with informed consent forms, ensuring they understood the purpose of the study and their role in it. The study strictly adhered to ethical standards by guaranteeing complete anonymity for all responses throughout the research, protecting the privacy and confidentiality of the participants.

3.2 MATERIALS

3.2.1 Questionnaire Formulation

A structured, self-administered questionnaire was used to collect data for this study. The instrument comprised three sections: (1) demographic information, (2) academic motivation, and (3) self-efficacy in performing OMFS procedures.

The academic motivation component of the questionnaire was adopted from the AMS developed by Vallerand et al. (1992), which is based on SDT. It consists of 28 items measuring intrinsic motivation, extrinsic motivation, and amotivation. The items were retained in their original structure and format, using a 7-point Likert scale ranging from 1 = Does not correspond at all to 7 = Corresponds exactly. Only minor contextual edits, including references to dental school and OMFS, were made to ensure relevance to the study population.

The AMS was selected for this study because it is a well-established instrument grounded in SDT and provides a comprehensive assessment of intrinsic motivation, extrinsic motivation, and amotivation in academic settings. Its strong theoretical basis, demonstrated validity and reliability, and suitability for use among higher education

students make it appropriate for assessing academic motivation among undergraduate clinical dental students undertaking OMFS courses.

The self-efficacy section was adopted from previously validated instruments used in dental education research. These items assess students' self-efficacy in performing clinical procedures, relevant to OMFS. The items were rated using a 5-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

The final questionnaire was reviewed by academic experts experienced in undergraduate dental education and OMFS, to ensure clarity, relevance, and appropriateness for the intended population.

After data collection, reliability and construct validity testing of the adapted questionnaire were conducted using the participants' responses. Since the questionnaire items were adopted from established instruments and only minimally modified to fit the dental and OMFS context, psychometric evaluation was necessary to ensure internal consistency and structural validity within the new study population.

Content validity of the questionnaire was established through expert evaluation by the research supervisors, who are experienced academicians in the field of dentistry and dental education. They reviewed each item to ensure that the statements were clear, relevant, and aligned with the study's objectives. Based on their feedback, minor modifications were made to improve the wording and ensure the appropriateness of the items for the target population. Minor wording adjustments were made to adapt the items to the dental and OMFS clinical training context.

Internal consistency reliability was assessed using Cronbach's alpha, which yielded coefficients of 0.89 for the academic motivation construct and 0.91 for the self-efficacy construct, indicating excellent internal consistency.

Construct validity was further examined through Exploratory Factor Analysis (EFA) using Principal Component Analysis (PCA) with varimax rotation to identify the underlying factor structure of the questionnaire. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.73, and Bartlett's Test of Sphericity was statistically significant ($p < 0.001$), confirming that the data were suitable for factor

analysis. All statistical analyses related to reliability and validity were conducted using IBM SPSS Statistics (Version 25) software.

3.2.2 Focus Group Discussions (FGD)

The FGD was conducted using the asynchronous online platform FocusGroupIt, which enabled participants to respond to prompts at their convenience and provided automated transcription of all text-based contributions.

Developing the semi-structured open-ended question guide followed a methodologically grounded, internally validated process. Initially, the research objectives were centered on exploring academic motivation and self-efficacy within OMFS courses, which were explicitly defined to form the guide's thematic backbone. A targeted review of literature in motivation, self-efficacy, and dental education informed the identification of core themes, ensuring the guide was anchored in relevant theoretical and empirical frameworks.

Draft questions were crafted to be open-ended and narrative, initiating with rapport-building prompts before transitioning into more reflective and topic-specific inquiries. Probing variants were developed alongside each primary question to encourage deeper exploration, exemplification, and elaboration from participants.

Although formal pilot testing was not executed, the draft guide underwent a rigorous internal review. A panel of qualitative research and subject-matter experts evaluated the guide, assessing clarity, coherence, sequence, and thematic alignment. Based on their feedback, revisions were made iteratively to optimize content validity and practical utility. Employing expert review instead of empirical pilot testing is a valid and efficient pretesting method in research design.

3.3 RESEARCH DESIGN

This study is classified as a cross-sectional study because it involves collecting data from a specific group of undergraduate dental students at IIUM at a single point in time to assess their levels of academic motivation and self-efficacy in OMFS courses. The study does not follow the students over a period or involve repeated measurements; instead, it provides a "snapshot" of their current motivation and self-efficacy levels during their OMFS education. Using questionnaires to gather data on these variables from all clinical students who are currently enrolled in OMFS courses, the study aims to identify the prevalence of academic motivation and self-efficacy among the students at that particular moment. This cross-sectional approach allows the researchers to analyse the existing conditions and factors influencing these aspects without considering changes over time, making it an efficient method for understanding student motivation and self-efficacy within the context of OMFS education.

This research project was conducted at the Kulliyah of Dentistry, IIUM Kuantan. The study focused on undergraduate dental students in this institution's OMFS courses. By carrying out the research in this specific academic setting, the project aimed to capture students' academic motivation and self-efficacy as they navigated their studies in OMFS. The Kulliyah of Dentistry at IIUM Kuantan provided a relevant and controlled environment to explore the educational experiences and factors influencing these aspects among the students.

The Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018) was applied to ensure methodological rigour across both quantitative and qualitative strands. This included appraisal of sampling, data collection, analysis, and integration processes, thereby enhancing the credibility and transparency of the study's design and reporting.

3.4 PARTICIPANT SELECTION

A census sampling approach was employed because the total number of eligible participants was manageable and represented a well-defined population of undergraduate clinical dental students in Years 3, 4, and 5. Year 3 students were included as they had commenced foundational OMFS teaching and initial clinical exposure, allowing exploration of early-stage academic motivation and self-efficacy alongside more senior students. By attempting to include all students within these cohorts, the study aimed to obtain a comprehensive understanding of academic motivation and self-efficacy across different stages of clinical training in OMFS. In this study, the survey questionnaire was distributed to all clinical dental students through the WhatsApp group chat. To encourage responses and maintain engagement, reminder notifications were sent at two-week intervals during a six-week data collection period. Each student was invited to participate voluntarily, and informed consent was obtained prior to survey completion. Although the intention was to include the entire population, not all students responded to the survey. Therefore, while a census sampling approach was implemented, the final dataset comprised only those who consented and completed the questionnaire. This resulted in a form of self-selected sample within the attempted census, as participation depended on each student's willingness to respond.

Despite this limitation, the use of a census approach ensured that every eligible student had an equal opportunity to participate, thereby minimizing selection bias that could arise from excluding any subgroup of students. Moreover, this method allowed the researcher to gather responses that were representative of various academic years and experiences within the clinical phase of the dental program, providing a richer and more holistic overview of the study constructs.

3.4.1 Sample Size Calculation

This study used the Raosoft software to determine the minimum sample size required. Given a population size of 173, a margin of error of 5%, and a self-efficacy interval of 95%, the software calculated that at least 120 participants are needed to achieve statistically significant results.

The sample size (n) and margin of error (E) were computed using the following formulas:

$$x = \frac{Z(\frac{c}{100})^2 \times r \times (100 - r)}{E^2}$$

Here:

- $Z(\frac{c}{100})$ is the critical value corresponding to the self-efficacy level c (for 95%, $Z \approx 1.96$).
- r is the estimated proportion of the population expected to have the characteristic of interest (expressed as a percentage).

$$n = \frac{N \times x}{(N - 1)E^2 + x}$$

Where:

- N is the total population size (173 in this case).
- x is as calculated in the previous step.
- E is the margin of error.

$$E = \sqrt{\frac{(N - n)x}{n(N - 1)}}$$

This formula estimates the precision of the sample size in representing the overall population.

By applying these formulas, the study determined that a sample size of 120 participants would ensure that the results would be within a 5% margin of error with 95% self-efficacy, effectively representing the larger population of 173 individuals.

3.4.2 Data Collection Methods

Participants completed a questionnaire to assess their academic motivation and self-efficacy related to OMFS courses. This structured instrument captured quantitative data on students' motivation and self-efficacy in their OMFS training.

In this study, the survey was distributed digitally using Google Forms. The survey link was first sent to the batch representatives, responsible for forwarding it to the respective WhatsApp groups for the undergraduate dental students. This method facilitated the dissemination of the survey across the student body and ensured that all participants had access to the study through their group communication channels. To encourage responses and maintain engagement, notifications were sent out at regular intervals of two weeks over six weeks.

The survey distribution was strategically timed to align with the academic calendar. Specifically, it was conducted when students typically fully understood the OMFS subject matter, particularly by the onset of Block 3. This timing was especially relevant for third-year students, who were expected to have a solid grasp of the content by this stage.

The primary goal of this approach was to gather insights from participants who had a well-developed understanding of the OMFS courses, ensuring that their responses were grounded in a thorough comprehension of the subject matter.

For the first phase of the survey, participants were required to provide their sociodemographic information. This initial section collected essential data on factors such as gender and year of study. Gathering this information was crucial for contextualizing the survey responses and ensuring that the subsequent analysis could account for variations related to sociodemographic factors.

The second section of the survey was designed to assess the students' specific form of motivation using the AMS tailored for college students. This section included 28 items aimed to evaluate various aspects of academic motivation related to pursuing further dental studies.

Students were required to respond to each of the 28 items by indicating the degree to which each statement reflected their motivation to continue their dental studies. Responses were recorded on a seven-point Likert scale, ranging from "strongly disagree" to "strongly agree." This scaling allowed for a nuanced understanding of the students' motivational levels and provided valuable data on their academic drive and commitment. All 28 items were set as compulsory in the online questionnaire; therefore, only fully completed responses were submitted and included in the analysis, and no missing data were present.

The third part of the survey comprised 17 questions aimed at evaluating different aspects of the undergraduate OMFS curriculum. Participants responded to these questions using a five-point Likert scale, which differed from the seven-point Likert scale used in the second part of the survey.

To gain deeper insights, the participants participated in semi-structured FGD. These discussions explored the factors that drove and hindered academic motivation and self-efficacy in OMFS courses. The semi-structured format allowed for open-ended questions and flexible discussions, providing qualitative data on the students' experiences, perceptions, and challenges.

In this study, FocusGroupIt is used to conduct FGD instead of organizing physical meetings. Here is how the focus group discussions were conducted using the FocusGroupIt platform:

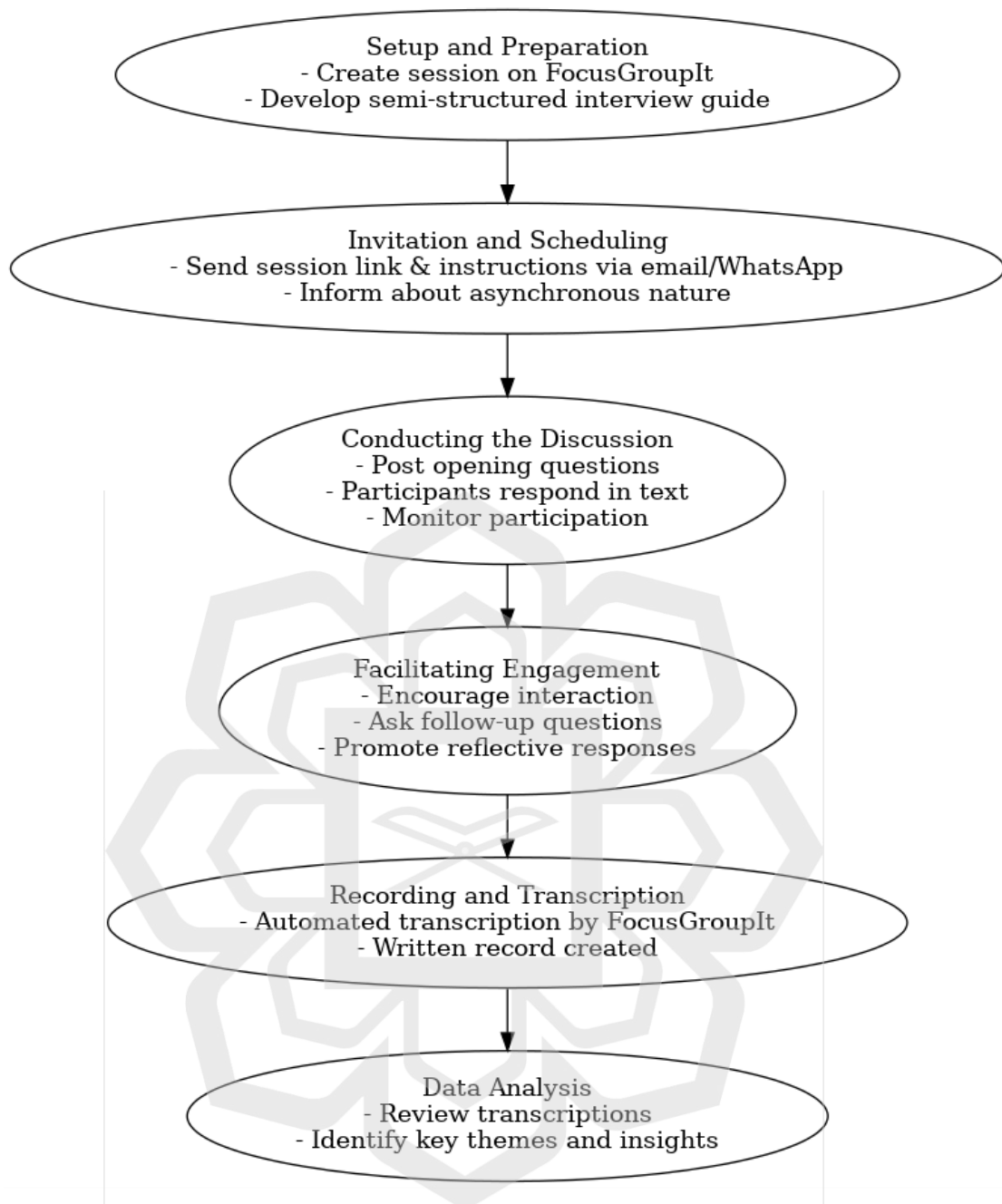


Figure 3.7: Focus Group Discussion (FGD) Flowchart for Academic Motivation and Self-efficacy in OMFS Courses

The online FGD included 10 clinical dental students from years 3, 4, and 5 to capture various experiences and insights regarding academic motivation and self-efficacy in OMFS. Given the slight heterogeneity in clinical exposure across years, a sample of this size was considered appropriate to achieve data saturation. Responses were analysed collectively and comparatively to identify both shared and year-specific themes.

Using FocusGroupIt, the FGD were conducted and managed effectively in an asynchronous format, ensuring flexibility for participants and capturing rich qualitative data for the study.

Combining these methods, the study aimed to comprehensively understand the factors affecting academic motivation and self-efficacy among undergraduate clinical dental students in OMFS. The questionnaire provided measurable data, while the focus groups offered rich, contextual insights into the students' experiences and perspectives.

3.4.3 Data Analysis

This study employs a mixed-method approach, incorporating quantitative and qualitative data analysis. The data collected through surveys and focus group discussions (FGDs) were analysed systematically to effectively address the research objectives.

The quantitative data obtained from the survey, which utilizes a 7-point Likert scale for AMS and a 5-point Likert scale for self-efficacy level, were analysed using descriptive and inferential statistical methods.

Descriptive statistics, including measures such as mean, standard deviation, frequency, and percentage, were used to summarize the distribution of responses. This analysis provides insights into the overall trends in academic motivation and self-efficacy levels among clinical dental students.

Inferential statistical tests were conducted to explore relationships and differences between variables. Independent t-tests and ANOVA were used to compare self-efficacy and motivation levels across different groups, such as year of study or gender. Pearson's correlation analysis examines the relationship between academic motivation and self-efficacy in OMFS.

The statistical analysis was conducted using IBM SPSS Statistics software version 25, a widely used tool for data management and statistical analysis in research. SPSS provides a user-friendly interface that enables efficient data entry, organization,

and manipulation. The software offers a range of statistical tests, from basic descriptive statistics to complex inferential analyses, ensuring robust and reliable results. Furthermore, SPSS allows for graphical representation of data through histograms, scatter plots, and bar charts, facilitating the visualization of trends and patterns. Data validation checks and assumption testing, such as normality and homogeneity of variance tests, were also conducted within SPSS to ensure the appropriateness of statistical methods used.

The qualitative data from FGDs conducted via FocusGroupIt were transcribed verbatim and analysed using thematic analysis to identify key insights regarding students' experiences, motivations, and self-efficacy levels in OMFS.

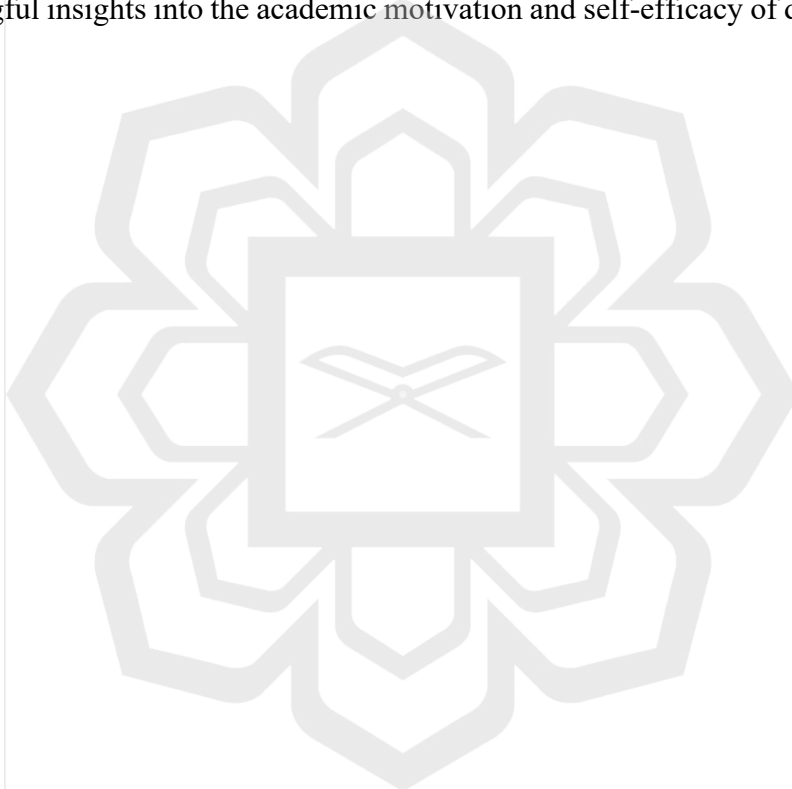
The thematic analysis was conducted using the framework proposed by Braun and Clarke (2006). First, data familiarisation was done by reviewing and reading transcripts multiple times to gain an in-depth understanding of responses. Initial codes were then generated by identifying keywords and phrases relevant to academic motivation and self-efficacy. Similar codes were grouped into broader themes, followed by a review and refinement process to ensure their relevance to the research objectives. Each theme was clearly defined and named to ensure consistency in interpretation, and the final report will be produced with supporting excerpts from the transcripts.

Inter-coder reliability was assessed, and qualitative analysis was assisted using NVivo software for systematic coding and organization. NVivo is a qualitative data analysis software designed to handle large amounts of textual data efficiently. It provides a structured framework for organizing, managing, and analysing qualitative data through automatic coding, word frequency analysis, and thematic mapping. NVivo allows researchers to categorize and link related data efficiently, enhancing the accuracy and depth of thematic analysis. Additionally, NVivo supports data visualization techniques such as word clouds, cluster analysis, and mind maps, which help identify connections and patterns within the data. By utilizing NVivo, the research process becomes more systematic and transparent, ensuring the credibility and rigor of qualitative findings.

Data integration was performed as a mixed-method study to comprehensively understand students' motivation and self-efficacy levels. A triangulation approach will

be used, whereby findings from the survey will be compared with themes emerging from FGDs to determine convergence or divergence of insights. For instance, if survey results indicate low self-efficacy in a specific OMFS procedure, the qualitative analysis will provide deeper explanations regarding the underlying reasons, such as fear of complications or lack of practice opportunities.

All data were analysed in compliance with ethical research guidelines. Participants' responses remained anonymous and confidential. Data were securely stored, and only de-identified information were used in reporting. This rigorous analytical approach ensures that the study's findings are valid and reliable and provide meaningful insights into the academic motivation and self-efficacy of dental students in OMFS.



CHAPTER FOUR

RESULTS

This chapter presents the findings of the study, including both quantitative and qualitative analyses. The quantitative results include descriptive statistics, inferential comparisons, and correlation analyses to address the research objectives. The qualitative findings from FGD are presented thematically to provide deeper insights into students' experiences.

Prior to conducting inferential analyses, assumptions of normality and homogeneity of variance were assessed. Shapiro–Wilk tests and visual inspection of Q–Q plots indicated that the data were approximately normally distributed ($p > 0.05$). Levene's test confirmed equality of variances across groups ($p > 0.05$), supporting the use of independent t-tests and one-way ANOVA. Linearity and homoscedasticity were examined through scatterplot inspection and were deemed satisfactory for Pearson correlation analysis. Given the adequate sample size ($n = 120$), parametric tests were considered appropriate.

4.1 LEVELS OF ACADEMIC MOTIVATION IN OMFS COURSES

The study sample consisted of clinical dental students from the Kulliyyah of Dentistry, IIUM, who met the inclusion criteria. A total of 120 students participated in the study. The demographic characteristics of the participants are summarized in Table 4.1.

Table 4.1: Sociodemographic Characteristics of the Sample

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	33	27.4 %
	Female	87	72.6 %
Year of Study	Year 3	46	38.1 %
	Year 4	31	26.2 %
	Year 5	43	35.7 %

The majority of the participants in this study were female ($n = 87$, 72.6%), while males accounted for 27.4% ($n = 33$) of the sample. In terms of the year of study, Year 3 students represented the largest group ($n = 46$, 38.1%), followed by Year 5 students ($n = 43$, 35.7%) and Year 4 students ($n = 31$, 26.2%). This distribution reflects a predominantly female cohort with a reasonably balanced representation across the clinical years, with a slightly higher proportion of Year 3 students.

The mean score for academic motivation, as measured by the AMS, was 5.31 ($SD = 0.77$), indicating a high level of motivation. Table 4.2 provides a detailed breakdown of the motivation subscales:

Table 4.2: Mean Scores and Standard Deviations for Academic Motivation Subscales (AMS)

Subscale	Mean ± SD	Percentage Distribution of Responses for Each Likert Scale Point (%)						
		1	2	3	4	5	6	7
Intrinsic Motivation-To know	5.46 ± 0.92	1.00	1.00	0.42	10.1	32.33	50.92	19.63
Intrinsic Motivation- Toward accomplishment	5.21 ± 0.90	0.21	1.04	4.58	17.71	40.00	22.29	15.00
Intrinsic Motivation-To experience stimulation	4.64 ± 1.23	3.54	6.04	8.33	24.79	28.96	21.25	7.92
Extrinsic Motivation- Identified	5.64 ± 0.88	0.63	0.63	3.54	10.83	22.92	37.92	24.38
Extrinsic Motivation- Introjected	5.35 ± 1.17	2.71	3.96	3.96	13.13	23.33	28.54	25.21
Extrinsic Motivation- External regulation	5.55 ± 0.96	1.67	3.75	2.71	12.08	21.67	27.08	31.88
Amotivation	2.68 ± 1.39	33.33	24.17	13.54	13.75	7.08	5.63	3.33

The results suggest that students reported the highest Extrinsic Motivation-Identified ($M = 5.64$, $SD = 0.88$), followed closely by Extrinsic Motivation- External regulation ($M = 5.55$, $SD = 0.96$). This indicates that students were more likely to be motivated by personal goals, career aspirations, and external rewards such as academic achievements, recognition, or expectations from family and society.

On the other hand, Amotivation had the lowest mean score ($M = 2.68$, $SD = 1.39$), suggesting that most students did not experience a lack of motivation. High standard deviation values across subscales indicate more variation among students in motivation levels.

For Intrinsic Motivation- To Know, most responses were concentrated in the higher scale range (5–7), indicating that most students were intrinsically driven by curiosity. A smaller percentage of students responded with Neutral (4) or Somewhat Disagree (3), suggesting variations in individual motivation levels. For Intrinsic Motivation- Toward Accomplishment and To Experience Stimulation, most responses were concentrated in the scale 4–6 range, indicating that most students were intrinsically driven by mastery and enjoyment of learning.

For Extrinsic Motivation- Identified and Introjected, responses were more widely distributed. While a large portion of students selected Agree (6) or Strongly Agree (7), a noticeable percentage also responded with Neutral (4) and Somewhat Agree (5), indicating that while external validation, such as grades and recognition, was a motivator for many, but some students were less influenced by external pressures.

Extrinsic Motivation - External Regulation showed a more balanced distribution across the scale, with Somewhat Agree (5), Agree (6), and Strongly Agree (7) responses appearing more frequently, suggesting that students had varying degrees of dependence on external rewards for motivation.

Responses for Amotivation were primarily in the lower range of the scale (1–4), meaning that most students did not experience a lack of motivation. However, a small percentage of students selected Somewhat Agree (5), Agree (6), and Strongly Agree (7), indicating that some individuals occasionally struggled with motivation.

4.2 LEVEL OF STUDENT SELF-EFFICACY IN OMFS

Self-efficacy levels in OMFS courses were measured using items related to various skills and procedures. Table 4.3 presents each item's mean and standard deviation (SD). The mean self-efficacy level in OMFS was 3.51 (SD = 0.64), indicating high self-efficacy.

Table 4.3: Mean Scores and Standard Deviations for Self-efficacy Items in Oral and Maxillofacial Surgery (OMFS) Courses

Skill/Procedure	Mean $\pm$ SD	Percentage Distribution of Responses for Each Likert Scale Point (%)				
		1	2	3	4	5
The teaching that I have received in oral surgery has given me sufficient knowledge to undertake independent practice.	3.71 $\pm$ 0.83	0.83	6.67	28.33	50.00	15.00
I feel confident that I could extract an upper single rooted tooth with an intact crown, in an otherwise intact dentition.	4.21 $\pm$ 0.92	10.83	3.33	9.17	40.83	45.00
I feel confident that I could remove visible retained roots of an upper left first molar with elevators or forceps.	3.65 $\pm$ 0.99	3.33	9.17	25.00	45.00	18.33
I feel confident to assess and perform an impacted wisdom tooth surgery necessitating:						
a) The raising of a mucoperiosteal flap.	3.19 $\pm$ 1.08	10.83	9.17	39.17	33.33	8.33
b) Bone removal.	3.35 $\pm$ 1.10	9.17	7.50	37.50	32.50	14.17

c) Sectioning the tooth to facilitate elevation of the roots.	3.21 ± 1.03	8.33	10.00	45.00	27.50	10.00
d) Wound closure using appropriate suture materials.	3.21 ± 1.11	10.83	10.83	34.17	35.83	9.17
I feel confident to diagnose and manage acute pericoronitis.	3.21 ± 0.10	6.67	13.33	40.00	33.33	7.50
I feel confident to manage haemorrhage from a socket.	3.41 ± 0.94	2.50	11.67	40.83	33.33	12.50
I feel confident to assess an impacted mandibular third molar with respect to guidelines and recognise the need for surgical removal.	3.61 ± 1.08	6.67	5.83	27.50	40.83	20.00
I feel confident that I can recognise the clinical features of potentially malignant and malignant lesions of the oral cavity.	3.22 ± 0.10	5.83	15.83	36.67	35.00	7.50
I feel confident that I can write an appropriate referral letter to a specialist in an appropriate time frame dependent on the clinical problem.	3.51 ± 0.84	0.83	10.00	36.67	43.33	10.00
I feel competent to differentiate between pain of odontogenic and non-odontogenic origin.	3.19 ± 0.99	5.00	18.33	37.50	32.50	7.50
I believe my teaching in anatomy has been appropriate for my clinical needs in oral surgery.	3.68 ± 0.82	0.83	4.17	37.50	42.50	15.83
I am more confident about undertaking oral surgery because of my knowledge and understanding of head and neck anatomy.	3.32 ± 0.82	1.67	9.17	53.30	28.33	8.33

The only anatomical knowledge needed for oral surgery is that of jaw and tooth morphology.	2.09 ± 1.03	35.00	33.33	22.50	8.33	1.67
Oral surgery is an enjoyable and rewarding discipline.	3.98 ± 0.95	1.67	1.67	31.67	28.33	37.50

The mean self-efficacy score for simple extractions was 4.21 ± 0.92 , with 85.83% of students reporting high self-efficacy (scores 4 and 5). In contrast, respondents' self-efficacy levels for diagnosing and managing acute pericoronitis, recognising the clinical features of potentially malignant and malignant oral lesions, and differentiating between odontogenic and non-odontogenic pain were relatively low. Only 7.5% of participants rated their self-efficacy at the highest level (score 5) for each skill, indicating that very few students felt entirely assured in their ability to handle these clinical situations. The mean self-efficacy scores for these areas were 3.21 ± 0.10 for diagnosing and managing acute pericoronitis, 3.22 ± 0.10 for recognizing malignant lesions, and 3.19 ± 0.99 for differentiating between odontogenic and non-odontogenic pain. The statement, 'The only anatomical knowledge needed for oral surgery is that of jaw and tooth morphology,' received a low agreement from respondents, with a mean score of 2.09 ± 1.03 on a 5-point Likert scale. Only 1.67% of participants selected a high self-efficacy rating (score 4 or 5), indicating that most students disagreed with this statement.

4.3 RELATIONSHIP BETWEEN GENDER AND ACADEMIC MOTIVATION AND SELF-EFFICACY

An analysis was conducted to determine if there were significant differences in item mean scores for academic motivation and self-efficacy between male and female respondents. Tables 4.4 and 4.5 summarize the mean scores and standard deviations for each item by gender, and the results of independent samples t-tests.

Table 4.4: Gender Differences in Academic Motivation: Mean Scores, Standard Deviations, and Independent Samples t-Test Results

Subscale	Male (Mean $\pm$ SD)	Female (Mean $\pm$ SD)	t-value	p-value	Interpretation
Intrinsic Motivation-To know	5.58 $\pm$ 0.79	5.41 $\pm$ 0.97	0.97	0.34	Not Significant
Intrinsic Motivation-Toward accomplishment	5.55 $\pm$ 0.90	5.09 $\pm$ 0.87	2.33	0.02	Significant
Intrinsic Motivation-To experience stimulation	4.78 $\pm$ 1.21	4.58 $\pm$ 1.24	0.82	0.41	Not Significant
Extrinsic Motivation-Identified	5.83 $\pm$ 0.60	5.56 $\pm$ 0.97	1.84	0.07	Not Significant
Extrinsic Motivation-Introjected	5.25 $\pm$ 1.34	5.39 $\pm$ 1.10	-0.60	0.55	Not Significant
Extrinsic Motivation-External regulation	5.51 $\pm$ 0.68	5.56 $\pm$ 1.05	-0.32	0.75	Not Significant
Amotivation	2.84 $\pm$ 1.62	2.61 $\pm$ 1.29	-0.85	0.40	Not Significant

The analysis revealed a significant difference in Intrinsic Motivation-Toward Accomplishment between male and female students, $t(df) = 2.33$, $p = 0.02$. Male

students ($M = 5.55$, $SD = 0.90$) reported significantly higher scores than female students ($M = 5.09$, $SD = 0.87$). For all other subscales, including Intrinsic Motivation–To Know, Intrinsic Motivation–To Experience Stimulation, the three types of Extrinsic Motivation (Identified, Introjected, and External Regulation), and Amotivation, no statistically significant gender differences were observed ($p > 0.05$).

Table 4.5: Gender Differences in Self-efficacy in OMFS Courses: Mean Scores, Standard Deviations, and Independent Samples t-Test Results

Skill/Procedure	Male (Mean $\pm$ SD)	Female (Mean $\pm$ SD)	t-value	p-value	Interpretation
The teaching that I have received in oral surgery has given me sufficient knowledge to undertake independent practice.	3.83 $\pm$ 0.70	3.66 $\pm$ 0.88	1.06	0.29	Not Significant
I feel confident that I could extract an upper single rooted tooth with an intact crown, in an otherwise intact dentition.	4.39 $\pm$ 0.99	4.14 $\pm$ 0.89	1.35	0.18	Not Significant
I feel confident that I could remove visible retained roots of an upper left first molar with elevators or forceps.	3.67 $\pm$ 1.10	3.65 $\pm$ 0.95	0.10	0.92	Not Significant
I feel confident to assess and perform an impacted wisdom tooth surgery necessitating:					
a) The raising of a mucoperiosteal flap.	3.31 $\pm$ 0.95	3.14 $\pm$ 1.13	0.77	0.44	Not Significant
b) Bone removal.	3.44 $\pm$ 1.03	3.31 $\pm$ 1.13	0.63	0.53	Not Significant

c) Sectioning the tooth to facilitate elevation of the roots.	3.42 ± 1.08	3.12 ± 1.01	1.46	0.15	Not Significant
d) Wound closure using appropriate suture materials.	3.22 ± 1.15	3.21 ± 1.09	0.50	0.96	Not Significant
I feel confident to diagnose and manage acute pericoronitis.	3.36 ± 0.99	3.15 ± 0.99	1.05	0.29	Not Significant
I feel confident to manage haemorrhage from a socket.	3.56 ± 0.97	3.35 ± 0.92	1.09	0.28	Not Significant
I feel confident to assess an impacted mandibular third molar with respect to guidelines and recognise the need for surgical removal.	3.78 ± 0.90	3.54 ± 1.14	1.11	0.27	Not Significant
I feel confident that I can recognise the clinical features of potentially malignant and malignant lesions of the oral cavity.	3.50 ± 1.06	3.11 ± 0.95	2.02	0.05	Significant
I feel confident that I can write an appropriate referral letter to a specialist in an appropriate time frame dependent on the clinical problem.	3.81 ± 0.89	3.39 ± 0.79	2.56	0.01	Significant
I feel competent to differentiate between pain of odontogenic and non-odontogenic origin.	3.69 ± 0.95	2.98 ± 0.93	3.87	0.00	Significant

I believe my teaching in anatomy has been appropriate for my clinical needs in oral surgery.	3.92 ± 0.73	3.58 ± 0.84	2.12	0.04	Significant
I am more confident about undertaking oral surgery because of my knowledge and understanding of head and neck anatomy.	3.61 ± 0.87	3.20 ± 0.77	2.58	0.01	Significant
The only anatomical knowledge needed for oral surgery is that of jaw and tooth morphology.	2.42 ± 1.20	1.95 ± 0.91	-2.32	0.02	Significant
Oral surgery is an enjoyable and rewarding discipline.	4.14 ± 1.05	3.91 ± 0.91	1.23	0.22	Not Significant

Male students reported higher self-efficacy levels in recognizing potentially malignant and malignant lesions ($M = 3.50$, $SD = 1.06$) than female students ($M = 3.11$, $SD = 0.95$, $p = 0.05$). Similarly, males expressed greater self-efficacy in writing referral letters, differentiating odontogenic vs. non-odontogenic pain, and anatomy teaching was appropriate for clinical needs.

Regarding anatomical knowledge, males felt more confident in understanding head and neck anatomy and its role in oral surgery ($M = 3.61$, $SD = 0.87$ vs. $M = 3.20$, $SD = \pm 0.77$, $p = 0.01$). Additionally, male students were more likely to agree with the statement that "The only anatomical knowledge needed for oral surgery is that of jaw and tooth morphology" ($p = 0.02$), whereas female students disagreed more strongly.

4.4 RELATIONSHIP BETWEEN YEAR-OF-STUDY AND ACADEMIC MOTIVATION AND SELF-EFFICACY

An analysis examined differences in item mean scores for academic motivation and self-efficacy among students across different clinical years. Table 4.6 presents the mean scores, standard deviations, and ANOVA results for academic motivation subscales. Post hoc comparisons using Tukey's HSD test for academic motivation are displayed in Table 4.7. Similarly, Table 4.8 summarizes the mean scores, standard deviations, and ANOVA results for self-efficacy in OMFS skills, while the corresponding post hoc results are provided in Table 4.9.

Table 4.6: Academic Motivation by Clinical Year: Mean Scores, Standard Deviations, and ANOVA Results

Subscale	Year 3 (Mean $\pm$ SD)	Year 4 (Mean $\pm$ SD)	Year 5 (Mean $\pm$ SD)	F-value	p-value	Interpretation
Intrinsic Motivation-To know	5.30 $\pm$ 0.90	5.10 $\pm$ 1.08	5.78 $\pm$ 0.73	6.57	0.00	Significant
Intrinsic Motivation-Toward accomplishment	5.07 $\pm$ 0.88	4.81 $\pm$ 0.93	5.54 $\pm$ 0.78	7.89	0.00	Significant
Intrinsic Motivation-To experience stimulation	4.55 $\pm$ 1.32	4.19 $\pm$ 1.24	4.96 $\pm$ 1.07	4.26	0.02	Significant
Extrinsic Motivation-Identified	5.49 $\pm$ 0.82	5.39 $\pm$ 0.95	5.89 $\pm$ 0.83	4.22	0.02	Significant
Extrinsic Motivation-Introjected	5.42 $\pm$ 1.03	4.92 $\pm$ 1.29	5.55 $\pm$ 1.16	3.03	0.05	Significant

Extrinsic Motivation- External regulation	5.64 ± 0.99	5.26 ± 1.09	5.66 ± 0.82	1.98	0.14	Not Significant
Amotivation	2.53 ± 1.42	2.52 ± 1.30	2.87 ± 1.42	0.90	0.41	Not Significant

The analysis of academic motivation subscales revealed a statistically significant difference across Year 3, Year 4, and Year 5 for five subscales: Intrinsic Motivation – To Know, Intrinsic Motivation – Toward Accomplishment, Intrinsic Motivation – To Experience Stimulation, Extrinsic Motivation – Identified, and Extrinsic Motivation – Introjected ($p < 0.05$).

Academic motivation was lowest in Year 4 across all significant subscales, indicating a decline in students' drive to acquire knowledge, achieve accomplishments, and experience learning stimulation. Similarly, externally regulated motivation, particularly identified and introjected extrinsic motivation, also significantly decreased during this period.

However, motivation levels peaked in Year 5, with students reporting the highest scores across all significant subscales. This suggests a strong resurgence of intrinsic and extrinsic motivation as students approach graduation, likely due to increased clinical exposure, self-efficacy, and a clearer professional outlook. Compared to Year 3, Year 5 students exhibited a greater sense of purpose and motivation in their academic journey.

In contrast, other subscales did not exhibit significant differences across the years ($p > 0.05$), suggesting that Amotivation and Extrinsic Motivation- External regulation remained stable throughout clinical training.

Post hoc analyses using Tukey's HSD test were conducted to determine the specific group differences in motivation among Year 3, Year 4, and Year 5 students.

Table 4.7: Post Hoc Tukey HSD Comparisons of Academic Motivation Subscales
Across Clinical Years

Subscale	Group Comparison	Mean Diff. (I-J)	Std. Error	p-value	95% CI (Lower, Upper)	Interpretation
Intrinsic Motivation-To know	Year 3 vs. Year 4	0.770	0.860	0.645	[-1.272, 2.812]	Not Significant
	Year 3 vs. Year 5	-1.924	0.757	0.033	[-3.720, -0.128]	Significant
	Year 4 vs. Year 5	-2.694	0.799	0.003	[-4.590, -0.798]	Significant
Intrinsic Motivation-Toward accomplishment	Year 3 vs. Year 4	1.039	0.828	0.423	[-0.925, 3.004]	Not Significant
	Year 3 vs. Year 5	-1.873	0.728	0.030	[-3.601, -0.144]	Significant
	Year 4 vs. Year 5	-2.912	0.769	0.001	[-4.736, -1.088]	Significant

Intrinsic Motivation-To experience stimulation	Year 3 vs. Year 4	1.447	1.167	0.432	[-1.323, 4.217]	Not Significant
	Year 3 vs. Year 5	-1.660	1.027	0.243	[-4.097, 0.777]	Not Significant
	Year 4 vs. Year 5	-3.107	1.084	0.014	[-5.679, - 0.535]	Significant
Extrinsic Motivation- Identified	Year 3 vs. Year 4	0.398	0.835	0.883	[-1.585, 2.380]	Not Significant
	Year 3 vs. Year 5	-1.620	0.735	0.075	[-3.365, 0.124]	Not Significant
	Year 4 vs. Year 5	-2.018	0.776	0.028	[-3.859, - 0.177]	Significant
Extrinsic Motivation- Introjected	Year 3 vs. Year 4	1.998	1.125	0.182	[-0.672, 4.669]	Not Significant
	Year 3 vs.	-0.532	0.990	0.853	[-2.882, 1.818]	Not Significant

	Year 5					
	Year 4 vs. Year 5	-2.530	1.045	0.044	[-5.010, - 0.050]	Significant
Extrinsic Motivation- External regulation	Year 3 vs. Year 4	1.508	0.923	0.235	[-0.682, 3.698]	Not Significant
	Year 3 vs. Year 5	-0.101	0.812	0.992	[-2.028, 1.826]	Not Significant
	Year 4 vs. Year 5	-1.609	0.857	0.150	[-3.643, 0.425]	Not Significant
Amotivation	Year 3 vs. Year 4	0.011	1.357	1.000	[-3.211, 3.233]	Not Significant
	Year 3 vs. Year 5	-1.364	1.194	0.490	[-4.199, 1.471]	Not Significant
	Year 4 vs. Year 5	-1.375	1.261	0.522	[-4.367, 1.617]	Not Significant

For Intrinsic Motivation – Knowledge, Year 5 students scored significantly lower than both Year 3 ($p = .033$) and Year 4 students ($p = .003$), while no significant difference was observed between Year 3 and Year 4 ($p = .645$). A similar pattern was found in Intrinsic Motivation – Accomplishment, where Year 5 students scored significantly lower than Year 3 ($p = .030$) and Year 4 ($p = .001$). In Intrinsic Motivation – Stimulation, a significant difference was observed only between Year 4 and Year 5 ($p = .014$).

For Extrinsic Motivation – Identified Regulation, Year 5 students scored significantly lower than Year 4 students ($p = .028$), with a marginal trend observed between Year 3 and Year 5 ($p = .075$). A significant difference was also found in Extrinsic Motivation – Introjected Regulation between Year 4 and Year 5 ($p = .044$). No significant group differences were observed for Extrinsic Motivation – External Regulation or Amotivation (all $p > .05$). These findings suggest that Year 5 students generally reported lower levels of intrinsic and internalized extrinsic motivation than their junior peers.

Table 4.8: Self-efficacy in Oral and Maxillofacial Surgery by Clinical Year: Mean Scores, Standard Deviations, and ANOVA Results

Skill/Procedure	Year 3 (Mean $\pm$ SD)	Year 4 (Mean $\pm$ SD)	Year 5 (Mean $\pm$ SD)	F- value	p- value	Interpreta tion
The teaching that I have received in oral surgery has given me sufficient knowledge to undertake independent practise	3.38 $\pm$ 0.83	3.52 $\pm$ 0.93	4.06 $\pm$ 0.63	9.60	0.00	Significant
I feel confident that I could extract an upper single rooted tooth with an intact crown, in an	3.81 $\pm$ 0.97	4.23 $\pm$ 1.12	4.49 $\pm$ 0.64	6.44	0.00	Significant

otherwise intact dentition						
I feel confident that I could remove visible retained roots of an upper left first molar with elevators or forceps	2.92 ± 0.92	3.84 ± 1.04	4.06 ± 0.69	19.92	0.00	Significant
I feel confident to assess and perform an impacted wisdom tooth surgery necessitating:						
a) The raising of a mucoperiosteal flap	2.32 ± 1.08	3.68 ± 0.91	3.51 ± 0.78	24.35	0.00	Significant
b) Bone removal	2.32 ± 1.08	3.65 ± 0.76	3.89 ± 0.75	37.92	0.00	Significant
c) Sectioning the tooth to facilitate elevation of the roots	2.43 ± 1.07	3.39 ± 0.88	3.64 ± 0.76	20.71	0.00	Significant
d) Wound closure using appropriate suture materials	2.35 ± 1.11	3.52 ± 0.72	3.64 ± 0.94	22.22	0.00	Significant
I feel confident to diagnose and manage acute pericoronitis	2.59 ± 1.09	3.42 ± 0.85	3.53 ± 0.80	12.53	0.00	Significant
I feel confident to manage haemorrhage from a socket	3.00 ± 0.85	3.19 ± 0.87	3.83 ± 0.87	11.38	0.00	Significant
I feel confident to assess an impacted mandibular third molar with respect to guidelines and recognise the need for surgical removal	2.54 ± 1.02	3.77 ± 0.67	4.26 ± 0.66	53.27	0.00	Significant
I feel confident that I can recognise the	2.76 ± 1.07	3.10 ± 0.94	3.62 ± 0.81	9.84	0.00	Significant

clinical features of potentially malignant and malignant lesions of the oral cavity						
I feel confident that I can write an appropriate referral letter to a specialist in an appropriate time frame dependent on the clinical problem	3.24 ± 0.90	3.29 ± 0.86	3.83 ± 0.67	7.56	0.00	Significant
I feel competent to differentiate between pain of odontogenic and non-odontogenic origin	2.92 ± 1.06	2.84 ± 0.93	3.58 ± 0.82	8.58	0.00	Significant
I believe my teaching in anatomy has been appropriate for my clinical needs in oral surgery	3.49 ± 0.90	3.74 ± 0.93	3.77 ± 0.67	1.48	0.23	Not Significant
I am more confident about undertaking oral surgery because of my knowledge and understanding of head and neck anatomy	3.08 ± 0.89	3.29 ± 0.78	3.51 ± 0.75	3.12	0.05	Significant
The only anatomical knowledge needed for oral surgery is that of jaw and tooth morphology	2.30 ± 1.18	1.68 ± 0.83	2.19 ± 0.96	3.67	0.03	Significant
Oral surgery is an enjoyable and rewarding discipline	3.65 ± 1.03	4.16 ± 0.82	4.09 ± 0.93	3.30	0.40	Not Significant

Self-efficacy levels declined from Year 3 to Year 4 before increasing in Year 5, where students reported the highest self-efficacy levels in performing OMFS procedures. The analysis revealed a statistically significant difference across Year 3, Year 4, and Year 5 for several competencies ($p < 0.05$).

In Year 3, students expressed relatively higher self-efficacy in basic procedures such as simple extractions of single-rooted teeth and diagnosing oral pathologies. However, in Year 4, there was a noticeable decline in self-efficacy, especially in more complex surgical procedures, such as impacted wisdom tooth surgery, bone removal, tooth sectioning, and wound closure. This decline may reflect increased exposure to more advanced clinical cases and a growing awareness of the challenges associated with OMFS.

By Year 5, self-efficacy levels significantly improved, with students reporting the highest scores in nearly all competencies. This suggests that increased clinical experience and hands-on training during their final year contributed to greater self-assurance in their surgical skills. Notably, self-efficacy in recognising potentially malignant lesions, managing acute pericoronitis, assessing impacted third molars, and handling postoperative complications like haemorrhage showed a significant upward trend.

Students' perceptions of the anatomical knowledge required for OMFS evolved. While early-year students were more likely to believe that knowledge of jaw and tooth morphology alone was sufficient, final-year students demonstrated a deeper understanding of the importance of head and neck anatomy in OMFS practice.

These findings highlight the progressive nature of skill acquisition and self-efficacy building in OMFS, with final-year students demonstrating the highest readiness for independent practice.

The analysis of students' perception of anatomy teaching and their views on oral surgery as an enjoyable and rewarding discipline showed no statistically significant differences across Year 3, Year 4, and Year 5 ($p > 0.05$).

Post hoc analyses using Tukey's HSD test were conducted to determine the specific group differences among Year 3, Year 4, and Year 5 students in their self-efficacy related to OMFS skills.

Table 4.9: Post Hoc Tukey HSD Comparisons of Self-efficacy in Oral and Maxillofacial Surgery Skills Across Clinical Years

Skill/Procedure	Group Comparison	Mean Diff. (I-J)	p-value	95% CI (Lower, Upper)	Interpretation
The teaching that I have received in oral surgery has given me sufficient knowledge to undertake independent practise	Year 3 vs. Year 4	-0.138	0.747	[-0.59, 0.31]	Not Significant
	Year 3 vs. Year 5	-0.678	0.000	[-1.07, -0.28]	Significant
	Year 4 vs. Year 5	-0.540	0.007	[-0.96, -0.12]	Significant
I feel confident that I could extract an upper single rooted tooth with an intact crown, in an otherwise intact dentition	Year 3 vs. Year 4	-0.415	0.136	[-0.93, 0.10]	Not Significant
	Year 3 vs. Year 5	-0.680	0.001	[-1.13, -0.23]	Significant

	Year 4 vs. Year 5	-0.265	0.385	[-0.74, 0.21]	Not Significant
I feel confident that I could remove visible retained roots of an upper left first molar with elevators or forceps	Year 3 vs. Year 4	-0.920	0.000	[-1.42, - 0.42]	Significant
	Year 3 vs. Year 5	-1.138	0.000	[-1.58, - 0.70]	Significant
	Year 4 vs. Year 5	-0.218	0.505	[-0.68, 0.25]	Not Significant
I feel confident to assess and perform an impacted wisdom tooth surgery necessitating:					
a) The raising of a mucoperiosteal flap	Year 3 vs. Year 4	-1.353	0.000	[-1.88, - 0.83]	Significant
	Year 3 vs. Year 5	-1.185	0.000	[-1.65, - 0.72]	Significant
	Year 4 vs. Year 5	0.168	0.695	[-0.32, 0.66]	Not Significant
b) Bone removal	Year 3 vs. Year 4	-1.321	0.000	[-1.82, - 0.82]	Significant

	Year 3 vs. Year 5	-1.562	0.000	[-2.00, - 1.12]	Significant
	Year 4 vs. Year 5	0.242	0.436	[-0.22, 0.71]	Not Significant
c) Sectioning the tooth to facilitate elevation of the roots	Year 3 vs. Year 4	-0.955	0.000	[-1.47, - 0.44]	Significant
	Year 3 vs. Year 5	-1.209	0.000	[-1.66, - 0.75]	Significant
	Year 4 vs. Year 5	0.254	0.423	[-0.23, 0.74]	Not Significant
d) Wound closure using appropriate suture materials	Year 3 vs. Year 4	-1.165	0.000	[-1.71, - 0.62]	Significant
	Year 3 vs. Year 5	-1.290	0.000	[-1.77, - 0.81]	Significant
	Year 4 vs. Year 5	0.125	0.829	[-0.38, 0.63]	Not Significant
I feel confident to diagnose and manage acute pericoronitis	Year 3 vs. Year 4	-0.825	0.001	[-1.35, - 0.30]	Significant

	Year 3 vs. Year 5	-0.934	0.000	[-1.40, - 0.47]	Significant
	Year 4 vs. Year 5	0.109	0.857	[-0.38, 0.60]	Not Significant
I feel confident to manage haemorrhage from a socket	Year 3 vs. Year 4	-0.194	0.629	[-0.69, 0.31]	Not Significant
	Year 3 vs. Year 5	-0.830	0.000	[-1.27, - 0.39]	Significant
	Year 4 vs. Year 5	-0.637	0.004	[-1.10, - 0.17]	Significant
I feel confident to assess an impacted mandibular third molar with respect to guidelines and recognise the need for surgical removal	Year 3 vs. Year 4	-1.234	0.000	[-1.69, - 0.78]	Significant
	Year 3 vs. Year 5	-1.724	0.000	[-2.12, - 1.32]	Significant
	Year 4 vs. Year 5	0.490	0.018	[0.07, 0.91]	Significant

I feel confident that I can recognise the clinical features of potentially malignant and malignant lesions of the oral cavity	Year 3 vs. Year 4	-0.340	0.294	[-0.88, 0.20]	Not Significant
	Year 3 vs. Year 5	-0.866	0.000	[-1.34, -0.39]	Significant
	Year 4 vs. Year 5	-0.526	0.036	[-1.02, -0.03]	Significant
I feel confident that I can write an appropriate referral letter to a specialist in an appropriate time frame dependent on the clinical problem	Year 3 vs. Year 4	-0.047	0.968	[-0.51, 0.41]	Not Significant
	Year 3 vs. Year 5	-0.587	0.002	[-0.99, -0.18]	Significant
	Year 4 vs. Year 5	-0.540	0.009	[-0.97, -0.11]	Significant
I feel competent to differentiate between pain of odontogenic and non-odontogenic origin	Year 3 vs. Year 4	0.080	0.933	[-0.46, 0.62]	Not Significant
	Year 3 vs. Year 5	-0.666	0.003	[-1.14, -0.19]	Significant
	Year 4 vs. Year 5	-0.746	0.002	[-1.24, -0.25]	Significant

I believe my teaching in anatomy has been appropriate for my clinical needs in oral surgery	Year 3 vs. Year 4	-0.255	0.406	[-0.73, 0.22]	Not Significant
	Year 3 vs. Year 5	-0.287	0.232	[-0.70, 0.13]	Not Significant
	Year 4 vs. Year 5	-0.032	0.984	[-0.47, 0.41]	Not Significant
I am more confident about undertaking oral surgery because of my knowledge and understanding of head and neck anatomy	Year 3 vs. Year 4	-0.209	0.536	[-0.67, 0.26]	Not Significant
	Year 3 vs. Year 5	-0.428	0.038	[-0.84, -0.02]	Significant
	Year 4 vs. Year 5	-0.219	0.453	[-0.65, 0.21]	Not Significant
The only anatomical knowledge needed for oral surgery is that of jaw and tooth morphology	Year 3 vs. Year 4	0.620	0.033	[0.04, 1.20]	Significant
	Year 3 vs. Year 5	0.109	0.869	[-0.40, 0.62]	Not Significant
	Year 4 vs. Year 5	-0.620	0.033	[-1.20, -0.04]	Significant

Oral surgery is an enjoyable and rewarding discipline	Year 3 vs. Year 4	-0.511	0.066	[-1.05, 0.03]	Not Significant
	Year 3 vs. Year 5	-0.513	0.067	[-1.05, 0.03]	Not Significant
	Year 4 vs. Year 5	-0.446	0.071	[-0.92, 0.03]	Not Significant

Across most procedures, Year 5 students consistently reported significantly higher self-efficacy compared to Year 3 students, particularly in complex procedures such as raising a mucoperiosteal flap, performing bone removal, sectioning teeth, wound closure, and managing acute pericoronitis. Significant differences were also observed between Year 3 and Year 4 students in multiple skills, although these were generally less pronounced. In contrast, the differences between Year 4 and Year 5 students were often not statistically significant, suggesting a plateau in self-efficacy levels toward the end of clinical training.

However, specific items such as managing haemorrhage from a socket, writing referral letters, differentiating odontogenic pain, and recognising malignant lesions did show significant Year 4 vs. Year 5 differences, indicating further development of critical clinical judgment and decision-making in later years. Self-efficacy in anatomy-related knowledge and its clinical application showed fewer significant differences, except for a modest but significant increase in Year 5 students' belief in how anatomy supports surgical competence. Interestingly, attitudes toward oral surgery as a discipline were high across all years, with no significant differences, suggesting consistently positive perceptions regardless of experience level.

These findings demonstrate a clear trajectory of increasing self-efficacy in OMFS skills across clinical years, supporting the progression and cumulative benefit of practical experience and exposure throughout the dental curriculum.

4.5 DRIVERS AND BARRIERS OF ACADEMIC MOTIVATION AND SELF-EFFICACY

Many participants were driven by an internal sense of purpose, often rooted in a childhood interest in healthcare. Personal goals of self-improvement, discipline, and a desire to serve others:

“My interest started from childhood. What motivates me is myself—to be a better person day by day.”

“I always push myself to be better—not for anyone else, but for myself.”

“I feel happy when I can relieve someone’s pain and see their smile after treatment.”

Students also expressed a growing appreciation for dentistry, which blends scientific knowledge with artistry and precision. This recognition enhanced their engagement and sense of identity as future clinicians:

“Dentistry itself is a science of art... we need details and to be meticulous in everything we do.”

“We are doing something delicate and beautiful—it makes me proud.”

External encouragement also played a crucial role in sustaining students’ academic efforts. Parental support was frequently mentioned, particularly in relation to career decisions and ongoing motivation:

“My parents are the reason I keep doing my best.”

“Even when I’m exhausted, I remember that my parents made sacrifices for me.”

While some students did not initially choose dentistry as their first option, over time, they developed a sense of purpose and commitment through external guidance:

“I planned to continue studies in science actuary, but my parents did not allow me.”

Additionally, mentorship from clinical supervisors and peer support were essential for building self-efficacy. Constructive feedback, personal experiences, and emotional reassurance helped students manage challenges and grow professionally:

“When my supervisor guided me and told her first experience... It boosted my self-efficacy.”

“Sometimes it’s my friends who remind me that I’m doing okay.”

A prominent barrier to both motivation and self-efficacy was self-doubt. Students reported internal struggles such as overthinking, fear of failure, and lack of belief in their capabilities:

“I’m doubting myself.”

“I wasted a lot of my time worrying about this silly matter.”

These mental blocks often led to procrastination, avoidance of tasks, and decreased clinical performance. Peer comparison further compounded feelings of inadequacy and pressure:

“To see others improving so fast.”

“Sometimes I feel like I’m behind, even if I’m trying my best.”

Students frequently cited time constraints and overwhelming workload as significant extrinsic challenges. Balancing clinical duties, academic content, and personal study proved to be a constant struggle:

“Workload, lab loads... need to divide time equally.”

“There’s just not enough time in a day to do everything properly.”

Another barrier was the difficulty in managing patients effectively—particularly in maintaining compliance and follow-up—which added stress and disrupted clinical requirements:

“To treat a patient is easy, but to convince them to come is hard.”

Limited revision time due to packed clinical schedules also hindered students’ preparedness and contributed to anxiety, especially during assessments:

“Time in clinic limits our time to revise.”

In summary, students’ academic motivation and self-efficacy were influenced by a combination of intrinsic factors (personal purpose, self-growth, and internal fears) and extrinsic factors (support systems, clinical guidance, workload, and patient-related challenges). While internal purpose and external mentorship were strong enablers, barriers such as self-doubt, peer comparison, time constraints, and clinical pressures limited their academic and clinical performance. These findings underscore the importance of structured academic support, emotional resilience training, and flexible learning strategies to optimize student development.



CHAPTER FIVE

DISCUSSION

5.1 ACADEMIC MOTIVATION AMONG UNDERGRADUATE DENTAL STUDENTS

This study revealed that participants scored highly in both Extrinsic Motivation Identified (EMID) and Extrinsic Motivation External Regulation (EMER). This finding suggests that students were motivated not only through personal identification with the value and significance of the OMFS course, but also through external influences such as familial expectations, academic requirements, and future career considerations. This pattern is consistent with the findings of Romas et al. (2019), who reported that health professional students frequently exhibit strong extrinsic motivation, particularly in the forms of identified and external regulation. Although extrinsic in nature, these motivational types may still promote adaptive engagement and academic persistence when aligned with personal goals or reinforced by structured institutional expectations.

While both EMID and EMER are categorized as extrinsic forms of motivation, they differ considerably in their degree of internalization. EMID represents a more autonomous form of extrinsic motivation, wherein students engage in academic activities because they have personally accepted and identified with the underlying value of those activities (Ryan & Deci, 2020). Within this context, the participants in the present study viewed the OMFS course as a critical component in their development as competent and confident dental practitioners. Many acknowledged that proficiency in OMFS skills contributes to enhanced clinical competence, patient safety, and professional credibility (Tannyhill, 2022). Furthermore, several participants associated their motivation with deeper personal values, such as a sense of responsibility, discipline, and the aspiration to provide optimal patient care, reflecting an internalization of the course's relevance (Ryan & Deci, 2020).

In contrast, EMER reflects a more controlled form of extrinsic motivation, driven primarily by external contingencies. Students who scored highly on this

dimension reported feeling obligated to perform well due to the competitive academic environment (Ratinho & Martins, 2023), the desire to meet parental expectations and repay familial investment in their education (Luo & Zhang, 2018), or the need to obtain satisfactory grades (Chhor et al., 2024) and secure future career stability (Rheinberg & Engeser, 2018). Although EMER may effectively sustain short-term performance, it is generally associated with higher stress levels and lower psychological well-being compared to more autonomous motivational orientations (Duggal et al., 2021; Razali et al., 2020; Sun & Hsieh, 2018).

The coexistence of high EMID and EMER scores observed in this study can be interpreted through the framework of SDT (Deci & Ryan, 2000), which conceptualizes motivation along a continuum ranging from controlled to autonomous regulation. Despite the presence of controlled motives of EMER, the concurrent elevation of more internalized motives of EMID suggests that many students are in a transitional process of integrating external demands into personally endorsed values. Such a pattern is common within structured academic environments, including dental education, where external pressures coexist with opportunities for value internalization and personal growth. Here, personal growth reflects motivational and professional development rather than age-related maturity. (Orsini et al., 2019).

In alignment with Kusurkar et al. (2013), this finding supports the notion that health profession students often commence their academic journey with externally regulated motives, such as fear of failure or desire for approval, which may gradually evolve into more internalized, value-driven forms of motivation when the educational environment nurtures autonomy, competence, and relatedness. Accordingly, in the context of OMFS learning, external expectations and academic demands of EMER may serve as initial motivational drivers that, when supported by meaningful learning experiences and a sense of professional purpose of EMID, can be internalized over time, fostering enduring engagement and long-term professional commitment.

Although overall levels of amotivation were low among the participants, qualitative responses revealed underlying challenges such as self-doubt (Mauliya et al., 2020), procrastination (Awwad et al., 2022), and difficulty maintaining consistent revision, particularly during periods of academic stress (Lovin et al., 2022). These insights are significant because they highlight that even motivated students may

occasionally experience lapses in motivation, especially when confronted with cognitive or emotional obstacles (Rone et al., 2023).

Artino (2012) states that amotivation often arises from a perceived lack of competence or control over academic tasks. In the context of the OMFS course, which is often perceived as complex, fast-paced, and high-stakes, some students reported feeling overwhelmed by the volume and complexity of the content (Jarosz et al., 2013; Kumar et al., 2024). This can erode their sense of efficacy, leading to avoidance behaviours such as procrastination or disengagement. When students do not believe that their efforts will lead to successful outcomes, or when they feel uncertain about how to approach learning effectively, they are more likely to withdraw mentally, even if they do not entirely lose interest in the subject (Carnegie Mellon University, n.d.; Janssen et al., 2023).

Moreover, these findings resonate with the work of Cotobal Rodeles et al. (2025), who documented that chronic stress, burnout, and emotional exhaustion are prevalent among health professions students and are closely linked to reduced motivation, cynicism, and academic disengagement. In high-pressure educational environments like dental school, students may internalize the expectation to perform consistently at a high level, which can become a source of anxiety and eventually lead to motivational fatigue (Jiménez-Ortiz et al., 2019). The emotional toll of maintaining clinical responsibilities, managing complex procedures, and preparing for assessments can significantly impact students' ability to remain engaged and self-directed (Bullock et al., 2017).

Notably, while these students may not score high in amotivation on quantitative scales, their qualitative comments reveal a more nuanced picture: motivation is not static, and students can oscillate between high engagement and temporary withdrawal depending on their perceived ability to cope with demands (Bradley, 2025). This reinforces the idea that motivation should be seen as a dynamic construct, influenced by personal, contextual, and emotional factors (Al Okla, 2018).

These findings suggest the importance of supportive educational strategies that enhance students' competence and autonomy (Adhikari et al., 2025). For example, providing formative feedback (Weber et al., 2025), teaching effective study strategies

(Pérez-Navío et al., 2023), and incorporating stress management training (Lloyd et al., 2017) may help reduce feelings of helplessness and promote more consistent motivation. Students with the skills and emotional resilience to face academic challenges are less likely to experience motivational decline even under pressure (Shengyao et al., 2024).

5.2 SELF-EFFICACY IN PERFORMING OMFS PROCEDURES

The study also explored how confident students felt in performing OMFS-related procedures. Students reported higher self-efficacy in basic procedures, such as local anaesthesia administration, simple extractions, and suturing. These tasks are commonly performed throughout clinical postings, giving students more opportunities for repeated practice, feedback, and hands-on exposure. According to Lee and Bong (2023) and Lopez-Garrido (2025), mastery experiences are the most effective source of self-efficacy beliefs. Students' self-efficacy in handling future challenges increases as they succeed in manageable tasks. This was echoed by Bosse et al. (2015) and Burgess (2020), who emphasized the importance of structured repetition in procedural skill development.

In contrast, students expressed lower self-efficacy in complex OMFS tasks, including flap design, surgical extractions, and managing complications such as postoperative bleeding or nerve injury. Several factors may contribute to the low self-efficacy observed among students when performing these complex procedures. First, these procedures' inherent complexity and invasiveness, which involve multiple intricate steps and carry a higher risk of complications, can be intimidating even for competent students. Second, the lack of suitable cases for undergraduates to participate in may limit opportunities for hands-on practice, thereby restricting the development of technical skills and procedural self-efficacy. Third, the student's limited exposure to specific clinical presentations, such as oral mucosal lesions, could further contribute to their low self-efficacy (Cabbar et al., 2019; Kamal & Abdulwahab, 2021). From a psychological standpoint, this lack of exposure limits opportunities for skill acquisition and self-assurance, as Dennick (2012) explained.

Sufficient knowledge and understanding of basic medical science, particularly anatomy, is key to building self-efficacy in clinical practice. Most respondents felt confident that their anatomical training was adequate for future practice; however, only a small number felt assured in undertaking OMFS based on their current head and neck anatomy knowledge. Since anatomy is primarily taught in the first two years and then reinforced during later OMFS lessons, additional emphasis is needed to refresh previously learned information. Notably, the majority disagreed that OMFS requires knowledge solely of jaw and tooth anatomy, and a positive correlation was found between self-efficacy in anatomical knowledge and surgical skills such as mucosal flap reflection, bone removal, root sectioning, and suturing (Cabbar et al., 2019; Kamal & Abdulwahab, 2021).

5.3 GENDER SIGNIFICANCE TOWARDS ACADEMIC MOTIVATION AND SELF-EFFICACY

Interestingly, the study found that male students reported higher levels of Intrinsic Motivation Toward Accomplishment (IMTA) than their female counterparts (Bundi, 2024). IMTA refers to the inherent satisfaction derived from striving to achieve and overcome academic or clinical challenges, often associated with feelings of competence, mastery, and self-improvement (Karabıyık, 2020). This suggests that male students may be more driven by the internal reward of completing complex tasks or meeting personal goals, which can translate into higher persistence and self-efficacy in skill-based learning such as that required in OMFS. However, contrasting evidence from Cabbar et al. (2019) and Ajlouni et al. (2022) showed that female students tend to exhibit higher intrinsic motivation, suggesting that gender differences in academic motivation may be context-dependent and influenced by cultural, institutional, or curricular factors.

In contrast, female participants more frequently expressed self-doubt, a tendency to compare themselves to peers, and feelings of inadequacy, despite no evident gap in objective performance. These patterns may have tempered their academic motivation, especially in high-stress or competitive settings (Efe & Hallegraeff, 2020).

This finding aligns with Reed et al. (2011), who reported that female health professional students often experience lower academic self-efficacy than male students, even when their academic achievements are comparable or superior (Wu et al., 2020). This phenomenon has been attributed to heightened performance anxiety, fear of failure, and internalized societal expectations, leading female students to underestimate their abilities and overemphasize their shortcomings (Akbari & Sahibzada, 2020; Cheek & Cheek, 2023).

Psychologically, this may reflect the influence of imposter syndrome, which is more commonly reported among female students and professionals (Huecker et al., 2023; Salari et al., 2025). Despite being competent, individuals experiencing imposter feelings may believe they are less capable than others perceive them to be, undermining their motivation and academic self-concept (Gorsi et al., 2023; Huecker et al., 2023). In a rigorous and high-pressure field like dentistry, particularly in OMFS, where precision and decision-making are critical, this self-doubt can create additional emotional and cognitive load that detracts from the intrinsic satisfaction of learning and achievement (Atiomo, 2020; Lu, 2025).

Additionally, gender socialisation may play a role (Turhan, 2020). Males are often socially reinforced to value achievement, competition, and mastery, which aligns closely with IMTA (Cortright et al., 2013). In contrast, females may face social messages that emphasize on perfectionism, social comparison, and external validation, all of which can influence how motivation manifests (Yang et al., 2024). These gendered experiences can affect how students interpret success and failure and whether they internalize their accomplishments.

Gender-related differences in self-efficacy also emerged. Male students reported higher self-efficacy in certain procedural tasks, while female students more often voiced uncertainty and the pressure of being compared to others (Sari & Derdiyok, 2021; Gyan & Mensah, 2025). These observations align with research by Larkin et al. (2014), which showed that female students often underreport their competencies and are more sensitive to perceived evaluation, even when their actual performance is comparable or superior to that of their male peers (Ratwatte, 2006; Bodard et al., 2024).

5.4 YEAR-OF-STUDY AND ACADEMIC MOTIVATION AND SELF-EFFICACY

An intriguing pattern observed in this study was the dip in motivation among Year 4 students, followed by a noticeable increase in motivation in Year 5. While Year 3 students appeared to be highly motivated as they transitioned from preclinical to clinical training, many Year 4 participants reported a decline in motivation, often linked to increased academic demands, stress, and reduced perceived control over their learning. This increase in Year 5 suggests that motivation is not linear throughout the dental curriculum. Instead, it fluctuates based on contextual and psychological factors unique to each academic year (Northern Kentucky University, 2024; University of South Australia, 2025).

The decline in Year 4 may be attributed to what is sometimes described in the literature as the "mid-semester slump" (Olvera, 2024). According to Zhang (2024) and Mesghina et al. (2025), motivation can decrease when students encounter higher cognitive load, increased pressure, and uncertainty about competence. In dental programs, year 4 is often when clinical complexity intensifies, assessments become more frequent, and expectations from supervisors and institutions increase. At this stage, students are required to demonstrate a higher degree of autonomy and clinical judgment, which can lead to anxiety, self-doubt, and emotional fatigue, all of which may suppress motivation.

However, by Year 5, many students reported a renewed sense of motivation, often citing increased clinical self-efficacy, professional identity formation, and a clearer vision of their future roles as dentists. This aligns with Piotrkowicz et al. (2021), who argued that advanced clinical experience in workplace-based learning environments enhances contextual motivation, as students integrate their skills into real patient care and see tangible outcomes of their efforts. By this stage, students often perceive themselves as near-graduates than learners, which may fuel intrinsic satisfaction and strengthen identified regulation, wherein they believe that learning is personally meaningful and aligned with their goals (Markus, 2021; Tahim, 2021).

Additionally, final-year students often have a clearer sense of direction, such as preparing for New Dental Officer Programme (NDOP) or postgraduate pathways, which can reignite motivation through goal-setting and a sense of closure (Latham, 2023). The anticipation of becoming a qualified professional may also restore a sense of purpose that was diminished during the more stressful and uncertain periods of Year 4.

An encouraging finding was that students' self-efficacy improved progressively with years of study. Final-year students generally reported more comfort in managing patient care, likely due to accumulated experience, supervisor encouragement, and peer learning (Sari & Derdiyok, 2021). This reflects the social constructivist view of learning, where development occurs in interaction with more knowledgeable others such as supervisors and peers (Davis et al., 2017; Saleem et al., 2021). As Jarvis & Baloyi (2020) and Daff et al. (2024) describe, self-efficacy builds over time through a scaffolded process of exposure, feedback, and reflection.

5.5 DRIVERS AND BARRIERS TOWARDS ACADEMIC MOTIVATION AND SELF-EFFICACY

Many participants demonstrated strong intrinsic motivation rooted in early interest in healthcare and personal aspirations for self-improvement. This aligns with prior studies in dental education where internal goals, such as professional identity formation and the satisfaction derived from patient care, were strong predictors of persistence and academic engagement (Kristyaningsih, 2024; Zou et al., 2024). Students' appreciation of dentistry as both a science and an art further reflects the role of intrinsic enjoyment and meaning in sustaining motivation, as supported by Niven et al. (2022), who highlighted that meaningfulness in learning enhances self-directed efforts.

Furthermore, the intrinsic link between motivation and self-efficacy was evident, as participants reported feeling pride in developing precise manual skills and managing delicate procedures (Ihsan et al., 2015; Hussein et al., 2021). This echoes findings by Yong & Roberts (2025), where skill mastery contributed significantly to

clinical self-efficacy. Thus, fostering opportunities for skill refinement in OMFS may strengthen motivational and self-efficacy levels.

Parental support emerged as a crucial extrinsic driver, particularly for students who initially did not choose dentistry as their preferred field. Similar trends were reported by Rincon et al. (2024), where family encouragement served as a stabilizing factor during early academic adjustment. Mentorship from supervisors and peer reassurance also played a pivotal role in reinforcing students' self-efficacy, consistent with the social constructivist framework by Vygotsky (1978), which emphasizes the importance of guidance from more experienced individuals in the learning process (Davis et al., 2017; Saleem et al., 2021). Constructive feedback and shared experiences from supervisors appeared to mitigate anxiety, a finding consistent with previous reports that positive clinical teaching climates enhance both competence and self-efficacy (Hattar et al., 2020; Tabriz et al., 2024).

Self-doubt, fear of failure, and overthinking were dominant intrinsic barriers. These findings parallel those of Jowkar et al. (2009) and Ghasemi et al. (2024), who reported that psychological stressors and negative self-perceptions significantly undermine dental students' academic functioning. The influence of peer comparison was also evident, contributing to perceived performance gaps and reinforcing feelings of inadequacy, a phenomenon often associated with impostor syndrome in higher education (Reiff et al., 2022). Such internal barriers can create a cycle of avoidance, reduced clinical exposure, and delayed skill acquisition, further weakening self-efficacy.

Time constraints, heavy workloads, and competing academic-clinical responsibilities emerged as major extrinsic obstacles. Similar to the observations of Bergmann et al. (2019) and Javed et al. (2024), participants described difficulty balancing patient care, academic requirements, and personal study time. Clinical scheduling pressures appeared to reduce opportunities for revision and preparation, particularly before assessments, thereby heightening anxiety (Yusefzadeh et al., 2019). Patient management issues such as ensuring compliance and follow-up were also highlighted, echoing findings from Alamoushet et al. (2024) that patient-related challenges can impede clinical progress and contribute to stress.

5.6 LIMITATIONS OF METHODOLOGY

Despite the valuable insights obtained, this study is not without its limitations. Firstly, the research was conducted solely at the Kulliyah of Dentistry, IIUM, which limits the generalizability of the findings to other institutions within Malaysia or globally. Differences in teaching styles, curriculum structure, clinical exposure, and student demographics in other dental schools may yield different results. Secondly, the quantitative component relied on self-report questionnaires, inherently susceptible to social desirability bias. Students may have answered in ways they believed were expected of them rather than providing entirely accurate reflections of their motivation or self-efficacy levels. This could have led to an overestimation or underestimation of specific constructs.

Furthermore, the qualitative aspect of the study, conducted through online focus group discussions, involved voluntary participation. This may have resulted in a selection bias, as students felt more comfortable sharing their experiences or who had stronger opinions about their learning journey might have been more inclined to participate. Consequently, the voices of less confident or more reserved students may not have been fully captured. Additionally, while appropriate for qualitative depth, the small number of participants in the focus groups may not comprehensively reflect the wider student body's experiences and perspectives.

CHAPTER SIX

CONCLUSION

6.1 CONCLUSION

This study explored the evolution of academic motivation and self-efficacy in OMFS among undergraduate dental students, with attention to differences by gender and clinical year while identifying underlying internal and external factors. Overall, the findings indicate that while students begin with strong motivation for intrinsic and extrinsic factors and moderate self-efficacy in basic procedures, these qualities fluctuate across training stages, with notable dips in mid-clinical years and a resurgence in Year 5, shaped by experience and support systems.

Quantitative results showed that extrinsic motivation – identified regulation and external regulation- was highest overall, with intrinsic motivation – to know and robust, whereas amotivation remained low. Male students exhibited significantly higher motivation toward accomplishment and greater self-efficacy in lesion recognition and anatomical application. Motivation and self-efficacy dipped in Year 4, a critical transition point, and rebounded by Year 5, especially in complex procedures. Qualitative insights highlighted intrinsic drivers such as personal purpose and professional identity, and extrinsic enablers such as parental and mentorship support, while self-doubt, peer comparison, workload, and patient compliance emerged as meaningful barriers.

These findings contribute to dental education by mapping how motivation and self-efficacy evolve across training, illuminating the challenges of mid-program transitions, and underscoring the stabilizing effect of clinical exposure and mentorship. Applying SDT helps us understand how internalized extrinsic motivation supports learning and how self-efficacy in clinical competency solidifies over time. This holistic picture prepares educators to support student development better.

To mitigate Year 4 declines in motivation and self-efficacy, dental programs should introduce targeted interventions such as structured mentorship, peer-support systems, and enhanced simulation practice during this pivotal year. In Year 5, maintaining reflective and autonomy-supportive learning can sustain intrinsic motivation. Addressing gender-based self-efficacy gaps through inclusive, feedback-rich clinical teaching is also critical. Future studies might adopt a longitudinal, multi-institutional approach and incorporate objective performance assessments for a more nuanced understanding.

Building on the findings and limitations of this study, several recommendations can be made for future research. First, expanding the study to include dental schools from different regions in Malaysia or internationally would provide a broader understanding of academic motivation and self-efficacy across diverse educational and cultural settings. Such comparisons help identify curriculum-based or institutional factors that support or hinder these attributes. Second, future studies would benefit from longitudinal designs to track students during clinical training. This approach would allow researchers to observe changes in motivation and self-efficacy over time and better understand the specific academic or clinical experiences that influence these developments.

Additionally, future research could explore implementing targeted interventions such as simulation training, peer mentoring programs, or structured reflective practice and assess their effectiveness in enhancing students' motivation and self-efficacy in oral surgery. Finally, it would be beneficial to investigate psychological factors such as anxiety, resilience, and perfectionism, which may play mediating or moderating roles in the relationship between motivation, self-efficacy, and academic performance in high-pressure clinical settings. A more comprehensive understanding of these dynamics could guide the design of more supportive and inclusive learning environments for dental students.

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Appendix I

ACADEMIC MOTIVATION SCALE (AMS-C 28) COLLEGE VERSION

WHY DO YOU GO TO COLLEGE?

1. Because with only a high-school degree I would not find a high-paying job later on.
2. Because I experience pleasure and satisfaction while learning new things.
3. Because I think that a dental education will help me better prepare for the career I have chosen.
4. For the intense feelings I experience when I am communicating my own ideas to others.
5. Honestly, I don't know; I really feel that I am wasting my time in faculty/class.
6. For the pleasure I experience while surpassing myself in my studies.
7. To prove to myself that I am capable of completing my dental degree.
8. In order to obtain a more prestigious job later on.
9. For the pleasure I experience when I discover new things never seen before.
10. Because eventually it will enable me to enter the job market in a field that I like.
11. For the pleasure that I experience when I read interesting dental authors.
12. I once had good reasons for going to dental school; however, now I wonder whether I should continue.
13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.
14. Because of the fact that when I succeed in dental school I feel important.
15. Because I want to have "the good life" later on.
16. For the pleasure that I experience in broadening my knowledge about dental subjects which appeal to me.
17. Because this will help me make a better choice regarding my career orientation.
18. For the pleasure that I experience when I feel completely absorbed by what certain dental authors have written.
19. I can't see why I go to dental school and frankly, I couldn't care less.
20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.
21. To show myself that I am an intelligent person.
22. In order to have a better salary later on.
23. Because my studies allow me to continue to learn about many things that interest me.
24. Because I believe that a few additional years of education will improve my competence as a worker.

- 25. For the "high" feeling that I experience while reading about various interesting dental subjects.
- 26. I don't know; I can't understand what I am doing in faculty/ class.
- 27. Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.
- 28. Because I want to show myself that I can succeed in my studies.



Appendix II

ABAOMS INSTRUMENTS

- B1. The teaching that I have received in oral surgery has given me sufficient knowledge to undertake independent practice.
- B2. I feel confident that I could extract an upper single rooted tooth with an intact crown, in an otherwise intact dentition.
- B3. I feel confident that I could remove visible retained roots of an upper left first molar with elevators or forceps.
- B4. I feel confident to assess and perform the surgical management of a failed extraction (e.g. a lower second molar) necessitating:
- a) The raising of a mucoperiosteal flap.
 - b) Bone removal.
 - c) Sectioning the tooth to facilitate elevation of the roots.
 - d) Wound closure using appropriate suture materials.
- B5. I feel confident to diagnose and manage acute pericoronitis.
- B6. I feel confident to manage haemorrhage from a socket.
- B7. I feel confident to assess an impacted mandibular third molar with respect to guidelines and recognise the need for surgical removal.
- B8. I feel confident that I can recognize the clinical features of potentially malignant and malignant lesions of the oral cavity.
- B9. I feel confident that I can write an appropriate referral letter to a specialist in an appropriate time frame dependent on the clinical problem.
- B10. I feel competent to differentiate between pain of odontogenic and non-odontogenic origin.
- D1. I believe my teaching in anatomy has been appropriate for my clinical needs in oral surgery.
- D2. I am more confident about undertaking oral surgery because of my knowledge and understanding of head and neck anatomy.
- D3. The only anatomical knowledge needed for oral surgery is that of jaw and tooth morphology.
- E1. Oral surgery is an enjoyable and rewarding discipline.

Appendix III

TOPIC GUIDE (FOCUS GROUP DISCUSSION)

1. Academic Drivers

- Can you share with us what initially inspired you to pursue dentistry and what keeps you motivated to continue your academic journey?
- Are there particular experiences, goals, or passions that have influenced your path?

2. Academic Barriers

- Can you share any specific barriers or obstacles that have made it difficult for you to achieve your academic goals?
- How have these challenges affected your progress, and what strategies or resources have you found helpful in overcoming them?

3. Self-Efficacy Drivers

- Can you share with us what factors or experiences have contributed to building your self-efficacy in your academic journey?
- Are there particular achievements, support systems, or personal qualities that have helped boost your self-efficacy?

4. Self-Efficacy Barriers

- Can you share with us some of the challenges or barriers you've encountered that have affected your self-efficacy in your academic journey?
- How have these obstacles influenced your self-efficacy, and what steps have you taken or considered to overcome them?

Appendix IV

WRITTEN CONSENT FORM



LEADING THE WAY
KHALIFAH • AMĀNAH • IQRA' • RAHMATAN UL-ĀLAMIN



AN INTERNATIONAL AWARD-WINNING INSTITUTION FOR SUSTAINABILITY

This informed consent form is for undergraduate dental students in the Kulliyah of Dentistry, IIUM and who we are inviting to participate in research entitled "Academic Motivation and Self-Efficacy in Oral and Maxillofacial Surgery Courses Among Undergraduate Dental Students at International Islamic University Malaysia: A Mixed-Methods Study"

**Nur Rabiatul Adawiyah Binti Kamaruzaman
G2310088
Oral Maxillofacial Surgery and Oral Diagnosis
Kulliyah of Dentistry, IIUM
Master of Dental Sciences- By Research (Full Time)**

This Informed Consent Form has two parts:

- **Information Sheet (to share information about the study with you)**
- **Certificate of Consent (for signatures if you choose to participate)**

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Introduction

You are invited to participate in a research study titled "Academic Motivation and Self-Efficacy in Oral and Maxillofacial Surgery Course Among Undergraduate Dental Students at International Islamic University Malaysia: A Mixed-Methods Study." This study aims to investigate the factors influencing academic motivation and self-efficacy specifically in the context of OMFS among dental students. Your participation in this study will contribute to the understanding of these important aspects of dental education.

Participation in this study is entirely voluntary. Before deciding whether to participate, it is important for you to understand the purpose of the study, what will be expected of

you, and any potential risks or benefits associated with participation. Please read the following information carefully, and do not hesitate to ask any questions you may have before making your decision.

Purpose of the research

The primary purpose of this study is to explore the relationship between academic motivation and self-efficacy among dental students with respect to their experiences in OMFS. By understanding these factors, we aim to identify potential areas for improvement in dental education and student support.

Type of Research Intervention

If you agree to participate in this study, you will be asked to complete a questionnaire. The questionnaire will include items related to your academic motivation, self-efficacy in OMFS, and demographic information. Your responses will be anonymized and analysed collectively with other participants' responses. The questionnaire will take approximately half an hour to complete.

Additionally, a subset of participants may be invited to participate in a focus group discussion. During the focus group discussion, participants will have the opportunity to share their experiences and perspectives related to academic motivation and self-efficacy in OMFS. The discussions will be audio-recorded for analysis purposes. Participation in the focus group discussion is voluntary, and if you choose to participate, you may withdraw at any time without penalty.

Participant Selection

Participant selection for the study on academic motivation and self-confidence in oral surgery among dental students will involve targeting dental students currently enrolled in oral surgery courses or programs.

Voluntary Participation

Participation in this study is entirely voluntary. Your decision whether to participate or not will not affect your academic standing or relationship with the researcher or institution. If you decide to participate, you are free to withdraw at any time without providing a reason.

Procedures

- A. The research study on academic motivation and self-efficacy in OMFS among dental students will utilize a mixed-methods approach, combining quantitative and qualitative data collection techniques.
- B.
 1. Quantitative Component:

- Questionnaire: Participants will be asked to complete a structured questionnaire consisting of items related to academic motivation, self-efficacy in OMFS, and demographic information. The questionnaire will be administered online and will take approximately 30 minutes to complete.

2. Qualitative Component:

- Focus Group Discussion: A subset of participants may be invited to participate in a focus group discussion. During the focus group, participants will have the opportunity to share their experiences and perspectives related to academic motivation and self-efficacy in OMFS. The discussions will be audio-recorded for analysis purposes and will provide deeper insights into the factors influencing academic motivation and self-efficacy among dental students.

Duration

Participating in this research study will require a time commitment from each participant. The completion of the questionnaire is estimated to take approximately 10 minutes. For those who are invited to participate in the focus group discussion, an additional time commitment will be required, typically ranging from 60 to 90 minutes, depending on the duration of the discussion. Therefore, participants should allocate a total time commitment of approximately 1 to 1.5 hours for involvement in this study, including both the questionnaire and potential participation in the focus group discussion. Your willingness to invest this time is greatly appreciated and will contribute significantly to the depth and quality of the research findings.

Risks

Participation in this study involves minimal risks. You may experience mild discomfort or stress when answering certain questions related to your academic experiences. Additionally, participating in a focus group discussion may involve sharing personal experiences in a group setting, which could potentially lead to feelings of discomfort or self-disclosure. However, you are free to skip any questions or decline to participate in the focus group discussion if you do not wish to share certain information.

Benefits

While there are no direct benefits to you for participating in this study, your contribution will help advance knowledge in the field of dental education. The findings of this study may inform educational practices aimed at enhancing academic motivation and self-efficacy among dental students.

Reimbursements

You will not be provided any incentive to take part in the research

Confidentiality

Your participation in this study will remain confidential. Your responses to the questionnaire will be anonymized and stored securely. Additionally, any identifying information shared during the focus group discussion will be kept confidential. Only the researcher will have access to the data, and it will be used solely for the purposes of this research study.

Sharing the Results

The results of this study will be disseminated through academic publications in peer-reviewed journals, presentations at conferences, and potentially through other academic channels. A summary of the findings may also be provided to participants who express interest in receiving such information. Additionally, efforts will be made to communicate the key findings of the study to relevant stakeholders in dental education and student support services to inform practice and policy. All efforts will be made to ensure that the results are presented accurately and comprehensively to maximize their impact and relevance.

Right to Refuse or Withdraw

Your participation in this study is entirely voluntary. You have the right to refuse to participate or to withdraw from the study at any time, for any reason, without penalty or consequence. Your decision regarding participation will not affect your academic standing or relationship with the researcher or institution. If you choose to withdraw from the study, any data collected up to that point will be discarded, and your participation will be terminated. Your privacy and confidentiality will be fully respected throughout the study process. Please feel free to contact the researcher if you have any questions or concerns about your participation or if you wish to withdraw from the study.

Who to Contact

If you have any questions or concerns about the study or your participation, please do not hesitate to contact the researcher, 011-39263542 or email at atulkmrzmn99@gmail.com

This proposal has been reviewed and approved by IREC, IIUM, which is a committee whose task it is to make sure that research participants are protected from

harm. If you wish to find about more about the IRB, contact;

**IIUM Research Ethics Committee (IREC), Research Management Centre
(Kuantan)**

Level 1, Admin Building (OCD)

International Islamic University Malaysia

Bandar Indera Mahkota

25200 Kuantan, Pahang

Email: irec@live.iiium.edu.my

Office: 09-5704733/4227

Part II: Certificate of Consent

I, hereby certify that I have carefully reviewed the information provided in the Informed Consent Form for the research study titled "Academic Motivation and Self-Efficacy in Oral and Maxillofacial Surgery Courses Among Undergraduate Dental Students at International Islamic University Malaysia: A Mixed-Methods Study."

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Name of Participant _____

Signature of Participant _____

Date _____

Day/month/year

If illiterate¹

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

¹A literate witness must sign (if possible, this person should be selected by the participant and should have no connection to the research team). Participants who are illiterate should include their thumb print as well.

Name of witness _____

Signature of witness _____

Date _____

Day/month/year

Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participant, and to

the best of my ability made sure that the participant understands that the following will be done:

1. The study aims to explore the relationship between academic motivation and self-efficacy among dental students with respect to their experiences in OMFS.
2. The participant will be asked to fill out questionnaires and participate in focus group discussion.
3. The study will take approximately 1-1.5 hours.
4. There may be some mild discomfort or stress when answering certain questions related to your academic experiences and participating in a focus group discussion may involve sharing personal experiences in a group setting, which could potentially lead to feelings of discomfort or self-disclosure
5. The participant may benefit by helping advance knowledge in the field of dental education and may inform educational practices aimed at enhancing academic motivation and self-efficacy among dental students
6. All information collected will be kept confidential and securely stored. Personal data will be anonymized in the reporting of results.
7. Participation is entirely voluntary. The participant can withdraw from the study at any time without any penalty or loss of benefits.

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this ICF has been provided to the participant.

Name of Researcher/person taking the consent_____

Signature of Researcher /person taking the consent_____

Date _____

Day/month/year